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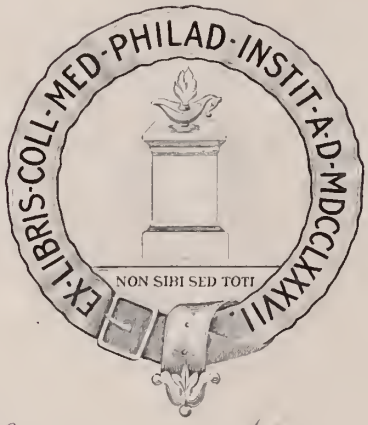

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Best Wishes
for the
New Year

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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

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THE FUNCTION OF THE DENTIST IN THE PREVENTION AND CARE OF INTRAORAL CANCER*

By HOWARD HICKS ASHBURY, B. S., M. D.‡
Elkins, West Virginia

A DISCUSSION of cancer is distasteful to many people for the reason that they hear of fatal cases only. Moreover, it is generally believed that cancer is incurable and this belief causes a great fear of the disease. As a matter of fact, ignorance of many known facts about this malady should be the principal fear concerning it. It has been said that if every doctor, every dentist, every nurse and the lay public knew what they should know of the available knowledge of cancer we could reduce the mortality of this disease at least fifty per cent. When it is realized that four hundred thousand people in the United States are suffering from cancer and that one hundred and forty thousand people died from it last year, I think one must agree that the dissemination of knowledge concerning this disease would be of great benefit to mankind.

Cancer covers a multitude of manifestations and it has been said that there are as many different kinds of cancer as there are other diseases. Just as one would not consider pneumonia and a broken leg as similar diseases, just so one would not consider carcinoma of the lip the same disease as carcinoma of the rectum. For this reason it is wise for us to define what part of this disease we intend to discuss, for obviously what is said concerning intraoral malignancies might not apply to carcinoma in other parts of the body, and vice versa. In the present instance we are restricting our attention to the intraoral cavity and by this is meant that area from the lips to the larynx. The nasal passages, skin and other adjacent structures are not to be considered as forming a part of this discussion.

There have been many definitions offered as to what constitutes a malignant neoplasm. A few of these may be reviewed at this point. Ziegler defines a tumor as a new growth of tissue which apparently originates and grows spontaneously, possesses an atypical structure, does not subserve the uses of the organism and reaches no definite termination of its

*Read before the Baltimore City Dental Society, December, 1935.

‡From the Golden Tumor Clinic, Elkins, West Virginia.

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growth. Ribbert says that tumors are new growths of tissue, self-centered; largely, or wholely uncontrolled, by the organism which supplies their nutrition; with a structure never entirely normal, and reaching no definite termination of growth. White has said that a tumor proper is a mass of cells, tissue or organs, resembling those normally present, but arranged atypically. It grows at the expense of the organism without at the same time serving any useful function. Ewing has concisely defined a tumor as an autonomous new growth of tissue. He adds, "I believe with Prudden that beyond the autonomy of tumor growth it is difficult to add any element to our definition which may apply to all true cancers. The more descriptive definitions are doubtless more readily applied, but with increasing knowledge the unknown etiology, progressive growth, and even the atypical morphology may become less significant, while the physiological concept of autonomy grows more substantial. Certain obvious features of tumor growth emphasize the importance of their autonomy." This general inability to define a tumor adequately shows us in some manner the complexity of the subject, and the tumor, like Topsy "just grows." The term malignant tumor or cancer is usually restricted to tumors which exhibit certain features which are essentially deleterious to the host. The more important of these features are infiltrative growth, local destructive properties, recurrence after removal, formation of metastases, local interference with function and the general toxic action of absorbed tumor products.

CAUSATION OF CANCER

Cancer may arise from any tissue of the body. However, it is rare to see it originate from a healthy area. Cancer is usually preceded by some inflammatory condition which exists for a variable period of time before malignant changes take place. The present accepted theory of the causation of cancer is twofold: first, an hereditary predisposition of a group of cells to react to some type of chronic irritation by excessive growth; second, a long continued chronic irritation to a group of cells. This theory is peculiarly well adapted to intraoral cancers and for that reason is of interest to us. The etiology of intraoral cancer may be considered in the form of an equation. This, personal susceptibility plus chronic irritation equals cancer. If one has a large personal susceptibility to cancer then a very small amount of irritation is necessary to produce cancer, but on the other hand if there is very little personal susceptibility the organism can withstand a greater amount of irritation without cancer appearing.

PREDISPOSING FACTORS

The predisposing factors in intraoral cancer may be assembled under a number of main headings. These include mechanical, bacteriological, chemical, thermal, galvanic and actinic causes. Under the heading of mechanical predisposing factors there are many possibilities. Obviously, broken teeth and unfilled carious teeth always present rough edges of enamel which are capable of traumatizing the tongue, cheeks or lips, and should be given necessary attention. Edentulous spaces cause abnormality of function and should be corrected. Irritation of mucous membranes can result from food fibers collecting in edentulous spaces. This condition also allows a tooth to tip over and assume an improper setting so that it constitutes a source of mechanical irritation. Faulty dentures are also quite frequently seen and are a cause of irritation. The fault in this case most frequently lies with the patient. Very few of the laity appreciate that the mandible and the maxilla change their shape following the extraction of teeth and with increasing age. It is superfluous for the writer to advise keeping a frequent check on dentures in order that changes in the jaws will not render them dangerous. However, this fact might well be impressed upon the average layman who believes that a denture once made should last forever.

Pipes, cigarettes and cigars play an important mechanical rôle due to the fact that

the lip is traumatized by the act of smoking. Patients suffering with carcinoma of the lip quite frequently give a history of such trauma. At one time or another all of us have had the experience of a cigarette tearing the skin from our lips. Some individuals do this more often than others, and sometimes in the same spot repeatedly rather than over the whole surface of the lip. Such a history is not at all uncommon in carcinoma of the lip. In the days when clay pipes were commonly smoked this was frequently an associated factor. Mouth breathing with the consequent drying out of the intraoral membranes has been designated as a predisposing factor to irritation. Other forms of mechanical irritations are habitual razor cuts on the same area of the lip, and occupational habits such as the upholsterer and shoemaker have of holding nails in their mouths, and the seamstress of holding pins in her mouth and biting thread.

FREQUENCY OF SYPHILIS

From the mechanical predisposing causes we pass on to those of a bacteriological nature. Syphilis is an important factor in the causation of cancer, particularly buccal and lingual. The frequency of syphilis is variously estimated, Meller finding signs of the disease in only seven of two hundred and seven cases of buccal cancer, while Fournier found the disease in one hundred and fifty-five cases out of one hundred and eighty-four. Tuberculosis of the intraoral cavity, although rare, has been accused, and the multitude of chronic infectious processes occupy a very large place in this category. They will be discussed later.

Our third group of predisposing factors is chemical. The daily routine use of astringent mouth washes should be discouraged. If such a procedure were necessary to the oral structures, the saliva would be astringent. The constant effect of astringents on the tissues is purely an unnatural one and is to be classified as an irritating force. For this reason, routine use should not be made of mouth washes that sting or burn. The continued use of escharotics, particularly silver nitrate, should be eliminated in the treatment of soft tissue lesions in the mouth. Clinical experience shows that escharotics, such as silver nitrate, have the possibility of stimulating in many mouths an exuberance of mucous membrane growths and proliferations. The New York Institute for the Study of Malignant Disease has reported many cases of intraoral epitheliomata in which a small benign lesion has been "touched up" with silver nitrate over a few months' time, with the result that a definitely malignant lesion is produced. Smoke from pipes, cigarettes and cigars, has also been indicted on a chemical basis. We are all more than familiar with the heavy brown tartar laid down on smokers' teeth. Another source of chemical irritation is found in those people who habitually eat food which is very highly seasoned.

THERMAL CAUSES

Our fourth group of predisposing causes is made up of thermal causes. There are two main factors working in this instance, one of which is overheated food and the other heat from smoking. This was exemplified in a patient seen several years ago. The patient, a German, was brought into the hospital with a very advanced carcinoma of the esophagus from which he died shortly after admission. From his history it was learned that he had been treated at another hospital three years previously, and that hospital's records showed that the patient had been successfully treated three years previously for a cancer of the buccal mucosa. Examination of the tissues involved, both in the buccal mucosa and in the esophagus, showed conclusively that the patient had suffered from two separate and distinct cancers. The day after this investigation had been made his daughter sought consultation for a sore tongue. The daughter reported that her father had always enjoyed his food very highly seasoned and very hot, and stated that she and the other members of the family ate their food served in this manner. Moreover, visitors to the family table were frequently unable to eat the food

because it was too hot and too sharp for their mouths. In the author's experience this case is the most conclusive evidence of its kind, for we find an individual who has had not one but two cancers of his upper alimentary tract following the prolonged use of very hot and highly spiced food.

Another form of oral irritation which is receiving attention in the literature at the present time is the production of electrical currents from the different metals used to replace lost structures or to fill teeth. Thus it is well to rule out this factor when confronted with erosion, ulcers, leukoplakia, or other precancerous lesions in the mouth. Galvanism has been reported definitely to produce such lesions, while the removal of the offending metals has resulted in disappearance of the lesions.

ACTINIC RAYS

In regard to carcinoma of the lip we cannot overlook the actinic rays of light. It is known that cancer of the lip and skin is more common in those individuals who spend a great deal of time out of doors, and we commonly find farmers and sailors among those who suffer from this form of malignancy. In Australia, where the habit of going without a hat is common, it is found that this type of cancer is more prevalent than in any other part of the world.

It is, of course, not advocated that everyone arbitrarily attempt to avoid all of the different forms of irritation which have been discussed, as such a procedure is irrational from many standpoints. However, if one should find in one's mouth a precancerous lesion, he should be very careful to avoid these forms of irritation, and any patient in whom is found such a suspicious lesion should be cautioned to avoid as many of these sources of irritation as possible. Smoking has probably received more attention as a cause of intraoral malignancy than any other one subject, and we believe that this attention is justified.

In a very extensive group of cases evidence points to the origin of carcinoma from previously normal adult cells which pass through a series of changes by chronic irritation, and terminate in carcinoma. This class of tumors has been called the irritation group and preliminary cell changes have been called "precancerous lesions." The evidence in support of this view is both clinical and pathological. Clinical observation has long indicated that the majority of important tumors are not dependent upon clinical abnormalities in tissue structure, but arise from once normal, but previously altered tissue, and that various forms of chronic inflammation are observed to precede the appearance of most tumors. In the various organs it is universally recognized that certain pathological conditions are followed in a variable, but high, proportion of cases by carcinoma. For these conditions the term "precancerous disease" has been employed by Orth, but it should be emphasized that these diseases present in themselves no element of the cancer process and are merely observed to precede and favor the development of cancer.

PRECANCEROUS CONDITIONS

We have already examined the causes which are conducive to the so-called precancerous conditions and at this time we will discuss just what are the precancerous conditions in the intraoral cavity. The frequency of syphilis has already been noted. The action of syphilis is indirect as the epithelioma is always preceded by a definite and usually prolonged luetic lesion. Such lesions may consist of syphilitic leukoplakia, epithelial hypertrophy, fissure or chronic glossitis. In particular, syphilis and carcinoma of the tongue are so frequently associated that it is at times hard to believe that a patient with a carcinoma of the tongue does not always have syphilis. A mistake too commonly made is to treat a patient with an ulcer on the tongue entirely for syphilis because of the fact that a positive Wassermann reaction exists. All of these cases deserve a biopsy to preclude the possibility of cancer and syphilis existing together and at the same time.

Leukoplakia is probably the most common precancerous condition produced by the various chronic irritative processes which have been outlined. This is of sufficient importance to warrant a detailed description of the process. Leukoplakia has been defined by Sutton as a chronic disorder of the intraoral mucous membrane characterized by rounded, oval, or irregularly shaped; indurated whiteish patches, which occasionally exhibit a tendency to ulcerate and which ultimately may become cancerous. Similar lesions will sometimes develop in the vagina, bladder, lip and other mucous membranes of the body. The most frequent places for these patches are the dorsum of the tongue, and the inner surfaces of the cheeks, at the interdental line.

INCREASED SENSITIVITY

Earliest manifestation is that of a localized inflammation with increased sensitivity to heat and cold. Redness, frequently associated with accentuation of the papillae, follows, and in the course of a week or a month the lesion becomes apparent to the eye as a sharply defined, variously shaped, whitish or slate colored, pin-head to pea-sized artefact, which gives rise to more or less stiffness and immobility of the affected part but seldom causes any pain. Two or more of the lesions may coalesce to form one large patch. Ultimately, owing to the lack of flexibility of the part, fissuring almost invariably occurs; and in the course of years ulceration and malignancy are not uncommon. Males are more frequently attacked than females with this disease and adults are far more susceptible than children. Histologically in leukoplakia, hyperkeratosis, fixation of the malpighian layer, hypertrophy of the epithelium, round cell infiltration, increased vascularity and edema all precede active malignant disease. Leukoplakia is easily diagnosed and is not readily confused with other diseases. However, being able to distinguish the period at which leukoplakia becomes malignant is extremely difficult at times, as leukoplakia which clinically shows no evidence whatsoever of malignancy may on biopsy show definite epidermoid carcinoma beginning. This is most often noted in the lower lip.

Many methods of treatment have been advised for leukoplakia. Various escharotics have been used such as silver nitrate, salicylic acid and undiluted nitric acid. The actual cautery has been extensively used as have the various methods of electrodesiccation. X-rays and radium have also been used in the treatment of this condition. Although leukoplakia of wide extent and long duration may be extremely resistant to treatment, most cases are readily curable with some one of the agents mentioned above. Which of these agents should be used is determined by examination of the individual patient and the extent of the lesion.

It has been stated that there are as many people with intraoral leukoplakia without cancer as there are sufferers with intraoral cancer who do not have leukoplakia. At first glance this would make it appear that there is little relationship between leukoplakia and intraoral cancer. On the other hand the association of cancer with leukoplakia is so common that one is forced to the conclusion that those who have leukoplakia and no cancer have not lived long enough to acquire an inevitable sequela to their disease. Here personal susceptibility plays a large part.

TUBERCULOUS PROCESSES

Other precancerous conditions which might be mentioned at this time are the various tuberculous processes which may occur in the mouth. Fortunately these processes are very rare as frequently they constitute as serious a hazard as does a cancer, Chronic atrophic glossitis, papilloma and fissures are other precancerous lesions, as are oral infections of any type whatsoever. Needless to say these precancerous lesions deserve treatment upon their detection. This treatment will, of course, be decided by the nature of the lesion which is present. As Dr. Ewing has so frequently said the time to treat cancer is before cancer exists, and these precancerous lesions are many, many times more

amenable to treatment than is the cancer which may develop in their place.

SUSPECTED LESIONS

Let us consider the case of the so-called "suspicious" patient. By this patient is meant that individual who has some lesion in the intraoral cavity which is not normal and which is suspected of being possibly malignant. Such a situation is arising constantly and gives all of us reason for concern. This concern is due to the fact that we do not wish unnecessarily to worry or harass our patient, and at the same time we do not wish to deprive the patient of any opportunity to be cured of his disease, if cancer does exist. The first step constitutes the taking of a careful history and making a painstaking physical examination. As a result of these two procedures we can determine the presence and the degree of chronic irritation existing. Careful examination will reveal the presence of any abnormality in the intraoral cavity which might possibly be the cause of the lesion under consideration. Thus, if a small ulcer or area of inflammation is near a ragged tooth then the repair, or extraction, of the tooth should be followed within a few days by an improvement in the appearance of the lesion. Induration, shown by resistance to the finger, is the most common feature of a cancerous ulcer. Catarrhal ulcers are quite soft, while tuberculous ulcers are also soft and have overhanging edges. The only other ulcer which has the same amount of induration as a cancerous ulcer is a chancre, which is distinguished by showing very little exudation, is usually is a smaller lesion and occurs in different localities. In most instances the diagnosis of intraoral cancer is simple and dependant upon never forgetting that intraoral cancer does exist. However, in the event that our history and examination have not sufficiently established the benignity or malignancy of the lesion it is necessary that a biopsy be taken. At one time the taking of a biopsy from a malignant lesion was considered of such a hazardous nature as to be ill-advised, but fortunately this view point is changing with a better conception of the cancer process. Almost invariably an intraoral carcinoma is represented by ulcerated or fungating process. It has never been shown that properly taking a small biopsy from such an area constitutes a menace to the patient or in any way causes the cancer to grow more rapidly or to spread to other parts of the body. A biopsy from such a lesion can be taken in a very simple manner and quite frequently without the knowledge of the patient. The method of taking the biopsy is of importance. In general we may say that the taking of a biopsy should avoid as much as possible any crushing or massage of the tumor tissue. A sharp biopsy forcep is the easiest and most efficient instrument to use. One may well remember that a very small piece of tissue is all that is necessary in most cases. A competent tumor pathologist will give a diagnosis from a few square millimeters of tissue. Finally, as regards the danger of biopsy it should be emphasized that no biopsy can ever be as dangerous as the course of an unsuspected or unrecognized malignant disease.

THE "SUSPICIOUS" PATIENT

To carry our hypothetical case still further let us suppose that our so-called "suspicious" patient presents evidence which leads us to a definite diagnosis of cancer. How shall the patient be handled? In the first place it is of the utmost importance that all available data be assembled before any direct action is taken upon the lesion. To every cancer patient there is presented one, and usually only one, golden opportunity. This golden opportunity represents that time when his lesion can be cured. Upon the choice of treatment depends the cure of the lesion and the saving of the patient's life. If the wrong method of treatment is instituted the possibility of curing the patient is usually lost, as, unlike other diseases, cancer gives us few opportunities to look back and attempt some other form of treatment after one has failed. There are three, and only three, therapeutic measures which have proved of lasting value in the treatment of cancer. These three meas-

ures are surgery, x-ray therapy and radium therapy. Various combinations of these agents may be used as is found necessary. This paper does not purport to present an argument in favor of surgery versus radiation or of radiation against surgery. For every patient and every lesion, it must be stressed, there is one method of treatment which is the best. If this method is surgical by all means let the patient be treated surgically; or, if, on the other hand, the lesion can be more adequately treated by radiation, then let that patient be treated by radiation.

USE OF RADIATION

In the treatment of intraoral malignancies radiation is used more frequently than surgery but both measures have their proper place. The object of surgery is to remove physically all cancerous tissues from the area in which it is situated. It is rare that we are not able to tell by past experiences, the extent of the lesion, and by the histological picture whether such an approach is possible. The use of the various physical agents (x-ray and radium) is of such a complex nature that it does not readily make itself available for presentation in a paper such as this. Unfortunately, a great air of mystery usually surrounds the use of therapeutic radiation. The impression is quite general that its use is empirical and that the radiation of a lesion is more an art than a science. The haphazard selection of dosage in treating these lesions is to be decried in the most emphatic manner. It is possible when using x-rays or radium to judge the extent of therapy by the biological reactions which take place in the particular tissues under consideration. Thus the radiation treatment of intraoral cancer may be based entirely upon clinical grounds. This clinical basis upon which dosage is determined is exemplified by the so-called radiation membrane or epithelitis of the mucous membrane. When sufficient radiation has been administered, in a suitable manner, there will appear upon the mucous membrane of the intraoral cavity, a membrane very similar to that which is seen in diphtheria. This membrane is in effect a slough of the normal tissues caused by the action of the radiation. It has been shown conclusively that in order to destroy a malignant lesion it is necessary that such a membrane be produced at the site of the primary lesion and on the surrounding normal tissue. If this condition can be obtained one can reasonably expect a cure of the primary lesion. Obviously this requires a daily examination of the lesion under consideration so that the treatment can be varied to suit that individual who is under treatment. By the use of this clinical method we have found that different individuals will require different doses. In some cases more than twice as much radiation will be required for one individual as for another. Due to the fact that most of these patients are elderly and in not too good general condition, it is imperative that the treatment not be carried beyond the bounds of the patient's strength, and yet at the same time it must be remembered that an inefficient, or insufficient, amount of radiation will not properly control the lesion. If it were not for untoward complications there would be no reason why almost every intraoral carcinoma could not be cured with sufficient treatment, and it is to the credit of dentistry that we are able in many instances to decrease these complications.

TREATMENT OF THE TEETH

Thus, prior to the use of any active therapeutic measure, whether it be x-ray, radium or surgery, certain oral care should be instituted. The most important of these oral measures is that of examination and treatment of the teeth which exist in the mouth. It is of the utmost importance that the mouth be placed in the best possible condition prior to the institution of treatment. Particularly in the use of radiation is it imperative that no bad or suspicious teeth be left in the mouth. This may sound radical, and lead to the extraction of teeth which might under different circumstances be preserved if more conservative measures were carried out. However, the inherent dangers, when suspected

teeth are left in the mouth, are so great that the sacrifice of these suspicious teeth is amply justified. There are a number of reasons which make this stand plausible. Infection due to dirty or uncared for teeth is quite commonly the cause of inflammation and infection throughout the entire oral cavity. If infected teeth are contributing to such a condition it is obviously worthwhile to remove them. Infected or abscessed teeth withstand radiation very poorly and it has been repeatedly demonstrated that the irradiation of abscessed teeth will in most instances lead to osteomyelitis of the jaw bone and possibly radiation necrosis in the area of the involved teeth. It is always necessary to have such teeth removed before treatment is instituted. The phrase "before treatment is instituted" cannot be stressed too much. In one case a patient had a carcinoma of his lip excised surgically and immediately afterwards was given x-ray therapy to his neck as a prophylactic measure against cervical metastases. After treatment had been initiated it was found that this patient had several abscessed teeth, and a dentist was called in to extract these teeth. Following extraction the patient very promptly developed a massive edema in his intraoral cavity which caused suffocation and death before tracheotomy could be performed.

DENTAL CONSULTATION

It should be an invariable procedure to give every patient with an intraoral cancer the benefit of a dental consultation before instituting treatment. The average physician is a poor judge of the condition of a patient's teeth and this problem lies strictly within the province of a competent dentist. If the dentist believes that there is reason to suspect infection in any of the teeth, then those teeth should be removed. In any event the teeth should be very carefully cleaned and the patient instructed in the care of his mouth. As you well know intraoral malignancy is associated almost invariably with a dirty and neglected mouth. Edentulous patients will give such a history in most cases. If many teeth have to be removed it is usually advisable to postpone the beginning of treatment until the gums and soft tissues have had a chance to start healing. When such a time of waiting is necessary it is customary to begin the treatment with very small doses of radiant energy and to increase these doses as evidence of healing is observed.

It is well to mention the use of protective dentures which are occasionally used. These dentures are made of lead and are covered with vulcanized rubber. By the use of such devices it is possible to afford protection to certain parts of the mouth during radiation therapy. These dentures are made from impressions taken with dental compound, and by the use of a small amount of ingenuity can be made to serve a variety of functions.

Until fairly recent years the cure of any intraoral malignancy other than a cancer of the lip was considered a rarity. However, with better understanding of the subject and more useful methods of treatment the average has risen considerably. In spite of the fact that much fundamental knowledge is still lacking, we find ourselves confronted with many valuable clinical observations, the full importance of which have not been exploited. The utilization of this existing knowledge and its proper correlation in a clinical sense will accomplish much which at present is believed to be impossible.

PLUM PUDDING

Plum pudding—the ancient English delicacy traditionally served with Christmas feasts—has come a long way and taken on many refinements since it entered the culinary lists some hundreds of years ago as Yule-dough. Harriet Morgan Fyler traces the evolutionary steps of this food in her article "Plum Pudding—The Traditional Christmas Dessert" in the December *Hygeia*.

Yule-dough was made of chopped meat paste, spices to symbolize the gifts of the Wise Men, and flour, regarded as embodying the spirit immanence in the wheat. It was baked in forms intended for images of the Child Jesus and was given to friends on Christmas Eve.

MAGNETIZABLE INTRAOCULAR FOREIGN BODIES*

By I. D. COLE, M. D., F. A. C. S.
Clarksburg, West Virginia

When most of us were boys, a private conveyance that could travel fifty miles per day was entirely too fast for safety. When the old family doctor was asked to hurry, he jogged along at the rapid pace of five or six miles per hour. In those good old days the anatomical security of our eyes was never questioned, even though the slivers from the nail and hatchet destroyed and injured hundreds of eyes yearly.

In this day of speed and the machine, the dangers constantly menacing the eyes are greater than ever before. Even with all the protective and preventive measures instituted in our mines, factories and shops we are continuously confronted with an ever increasing danger. Thousands of eyes are sacrificed yearly in this industrialized country. In the State of Ohio there were twenty-nine thousand five hundred and thirty-six industrial eye injuries for the year of 1935, of which one hundred and fifty-one were puncture injuries by steel. The exact number of eyes lost and the vision lost following surgical intervention was not available. These facts give you some idea of the possibilities that arises from industrial eye injuries. The State of Pennsylvania was also solicited for statistics as to eye injuries in industries, but no information was available. The State of West Virginia could give no definite information as late as March 15, 1937, but expressed a willingness to give the information at a later date.

DIAGNOSTIC AIDS

Diagnosis: An eye injury resulting in a penetration of either the cornea or sclera should always be looked upon with suspicion. If seen in the first few hours after injury the diagnosis is not so difficult. A small red spot on the sclera leads one to conclude the existence of an intraocular foreign body. If the small red spot has disappeared and the small corneal wound has healed the difficulties of diagnosis now arise.

History: An exact history of injury will aid materially. The kind of tool or machine that the individual was using should enter into the consideration.

MAKING THE INSPECTION

Inspection: Inspection should be made under a strong light with a loop and most frequently the evidence of penetration of the cornea will be revealed, and injuries of the iris can be seen readily. Dilatation of the pupil and fundus examination with an ophthalmoscope will add much more information. The slit lamp may be used to search the cornea, iris and lens for evidence of injury. Inflammatory deposits and synechia can be discovered and stria of the vitreous can be observed. A hole in the iris can be seen years after it has been penetrated. After a complete inspection examination, a skiagram should be taken to aid in determining the existence, localization and size of the offending particle.

X-ray Examination: Frequently the x-ray man has been wrong in localization of the foreign body. He may tell us it is in the globe when it is in the orbit. He may tell us it is in the orbit when it is in the globe. Thus localization has become an important study. Sweet, Exner and Bowen and many other notable röentgenologists have in the past attempted and are at the present time attempting to bring localization to a perfect procedure. Sweet's method of using two metal indicators was the first reliable accurate method of localization. Kibbe tried to localize. His method was through the relation of the bony point. He put shots under the eye-

*Presented before the Eye, Ear, Nose and Throat Section, Clarksburg, May 24, 1937.

lid to assist in localization. In 1895 the x-ray was discovered. In 1896 Dr. Williams of Boston succeeded in making the first skiagram of an intraocular foreign body. He made an exposure for ten minutes.

The foreign body was one quarter inch long and one-eighth inch wide. It was a piece of copper and was removed through a scleral incision. This was the first attempt to picture a foreign body within the globe. Today Sweet's method is used in a great many hospitals for localization and is considered by many as being very accurate. It is a geometric calculation from two metallic points that are known.

Treatment: In the large hospitals in Europe, after diagnosing intraocular foreign bodies, 10 cc. of boiled milk is injected in the gluteal region. It is claimed by Guist, Linder and others that the milk injections save 50 per cent more eyes than would otherwise be saved. Pillat claims that milk injections, in penetrating injuries of the eyes, are more efficient than any other method is, in preventing ocular destruction. We are not so optimistic about this procedure in this country. Non-specific proteins are used by us with more or less effect. Antitetanus serum is used most frequently in penetrating wounds of the eye. As there is very little pain in a small intraocular foreign body in the initial period, sedatives are very rarely needed. Atropine instillation is indicated in every case in early stages. Of course, an increase of intraocular tension would contraindicate the use of atropine until after the foreign body has been extracted, or some procedure to reduce tension has been instituted.

THE ELECTRO MAGNET

The invention of the electro magnet in 1842 changed the whole technique in the removal of magnetizable intraocular foreign bodies. Preceding this invention lodestone magnet had been used in ophthalmology as far back as 1462. Meyer Nikolaus practiced in Bremen and was the first to remove by magnet a foreign body from the interior of the eye. The ancient Greeks knew of lodestone but used it only in the eye ointment. The physicians of ancient India used the magnet in general surgery, but not in ophthalmology.

USE OF MAGNET

In 1874 Mackeown made an incision in the eye for the purpose of withdrawing from the ocular interior an attractable body by means of a magnet. Julius Hirshburg, in 1875, invented an ocular electro magnet with a point. His idea is still in practical use in the modern magnet. In selecting a magnet for the removal of a foreign body, the size and location of the object is to be considered. Very small foreign bodies require a large magnet. Large foreign bodies can be removed by a small hand magnet. The magnet operation should be approached with some hesitation except with an exact x-ray localization, otherwise the surgeon will not know in which direction to apply the magnetic force. The extraction power of the magnet is directly proportional to the mass and inversely proportional to the square of the distance. The magnetization and polarization of the foreign body takes place almost immediately. It is well in the beginning to say that every foreign body case is a law unto itself as each presents individual complications and conditions. Any method of removal that accomplishes the desired result with the least traumatism is the best. If the case is seen within the first twelve hours before the closure of the wound it is probably the best policy to extract through the wound of entrance. If the wound passes through the cornea and the iris this is surely the best procedure. If the primary wound has healed and the foreign body is in the anterior chamber, a limbus incision at the most convenient point should be the procedure. If the foreign body has passed into the vitreous there is a choice of two procedures either to attempt to extract through a limbus incision or through a scleral incision. If the foreign body is of a length and breadth sufficient for magnetization at a distance of one to two centimeters, the anterior corneal route will probably give less traumatism than

the scleral route. Many brilliant results of removal through the sclera have been observed only to be followed by a detachment of the retina and total destruction of the eye. Even the introduction of a sterile foreign body into the vitreous is a very serious blow to the nutrition of the eye, and if we add to it another retinal injury which will almost invariably undergo connective tissue proliferation with shrinking, the results cannot be other than fatal to the integrity of the eye.

SCLERAL INCISION

Operation: Should a scleral incision be decided upon, the following procedure is fairly successful in saving the eyeball. After the eye has been prepared and cocainized with drops, dissect a conjunctival flap from over the scleral area where you expect to find the foreign body. Usually the area selected is between the muscular attachment in one of the four quadrants. The conjunctival flap is pulled toward the limbus by a silk suture. The sclera is now clearly exposed, and using a cataract knife, with a short quick plunge, an incision is made directly through the sclera, posterior to the ciliary body and out of range of the large chorioidal vessels. The knife should be in perfect condition and the incision fairly large to allow the tip of the magnet to be inserted without pressure. If we are in luck, the object will be extracted at once; if not, the magnet should be applied with as little traumatism to the eye as possible until the steel is magnetized. The flap of the conjuctiva is now sutured back in place. The scleral opening is not sutured. The usual dressings are applied.

Difficulties of Operation: The foreign body may be so far back and so small that only a feeble power can be exerted and, in these cases, it is better to persist in the application of the magnet until convinced that it is useless. If the foreign body is not removed, in all probabilities the eye will be lost as a result of infection, and require enucleation. If the foreign body is in the form of a spicule, and entangled in the ciliary body or iris, the small magnet should be used at different angles to dislodge it. Should it become so entangled in the iris that it cannot be removed by the magnet because of the entanglement, an iridectomy may solve the problem. If entangled in the siliary body, rapid destruction of the eye may be expected and an enucleation be necessary. If the foreign body has been in the eye any length of time it will be surrounded by new formed tissue which will hold it in position and even though the magnet be applied the foreign body will not become magnetized. Enucleation is almost always advisable in these cases.

Complications: Complications that may follow if a foreign body is removed or left in the eye are about the same. First infections of the iris and ciliary body cause cloudy conditions of the aqueous and pupillary occlusion. Anterior synechia and posterior synechia are frequent; either are endangering as to sympathetic ophthalmia possibilities. If the lens is injured, a traumatic cataract is to be expected. If the object has entered the vitreous, we are confronted with more serious complications. Infection may terminate in enucleation. If this has been avoided, detached retina, liquid vitreous, vitreous opacities, chorioiditis, optic neuritis and glaucoma are always posssibilities. Phthisis bulbi and soft painful eye, occur late in these conditions and enucleation is required for safety to the uninjured eye.

CASE REPORTS

I shall present my last four cases.

Case 1: While standing at a distance of twenty feet from a fellow workman, who was using a heavy hammer and coal chisel on a steel rail, Mr. H. received the following injury. A sliver of steel entered obliquely through the cornea of the right eye and lodged on the iris near the limbus. No x-ray was needed to diagnose this case, as the steel was visible. The question was how to remove it. A limbus incision with a keratome was made, directed toward the steel. The magnetic force was indirectly applied through a pair of forceps, holding the forceps against the cornea, thus pulling from the iris the par-

ticle of steel. Two other attempts had been made to remove the steel before the case was referred to me.

Result: Iris is atrophic at the point of injury. Lens capsule is somewhat clouded. Cornea has a scar below pupil, where the steel entered. Tension normal. Vision 20/30 with a plus 0.50.

Case 2: While Mr. C. was drilling a piece of steel, a shaving passed through the cornea and iris injuring the lens. First aid was given by fellow workmen, who concluded he had a scratch on the eye. Four days later he became my patient. At first it was thought a corneal incision would be necessary to facilitate the extraction; but, with a giant magnet the steel was withdrawn through the point of entrance. The steel particle was one-fourth inch long and 1/100 inch in diameter. At this time he had a marked iritis, clouded aqueous and steamy cornea. The need of atropine was indicated and used until the corneal wound was healed. Results following this injury are: corneal wound healed, hole in the iris remained, and a cloudy condition of the lens in the upper temporal side existed. About five days after the extraction of the piece of steel I observed by means of a slit lamp a beautiful colorful picture extending over the external capsule of the lens. I suspected this to be a case of siderosis from the deposit of iron salts. This picture was frequently observed over a period of six months but it seemed to remain stationary.

Result: The vision today is 20/30 with a plus 2.25 x 140. He has very little disturbance in vision except in looking up and out.

Case 3: Mr. Z. was driving a nail and a piece of steel from the hatchet entered his left eye. A stereopticon x-ray picture was made and the foreign body was located in the vitreous posterior, and external to the center near the sclera. The scleral incision operation was used to remove the steel through the upper outer quadrant. The giant magnet was applied and contact was readily made.

Result: Corneal wound healed; hole in the iris remains; lens, cataractous; vitreous not determined. Vision, light only; tension, normal.

Case 4: While Mr. Y. was striking a drill something entered his right eye, but did not give him much disturbance for four days. His family physician gave him 10 per cent argyrol solution to drop into the eye and advised hot applications. This did not give the desired results. On the fifth day I was consulted. The history led us to suspect a possible intraocular foreign body in the vitreous. Atropine had been dropped in the eye before he was sent to the hospital for x-ray. He felt so much better after being x-rayed he decided there was nothing in his eye and would not allow the magnet to be applied. He was kept under observation for five or six weeks. Atropine was used twice daily. The inflammatory condition subsided and his vision was practically normal. The piece of steel can be seen with an ophthalmoscope. He has no vitreous exudate or vitreous opacities. He has no pain, nor rise in tension. He works every day and has no complaints.

CHASING THE CURE

All too often the public is prone to believe that the only ones who are visited by this obnoxious little creature, the tubercle bacillus, are lean, stooped, pallid individuals, probably some place remote from them. That this is utterly false is proved by Ida M. Blissard, R.N., in her article, "Chasing the Cure" appearing in the December issue of *Hygeia.*

The absurdity of this point of view is shown by the fact that about 65 per cent of the people who reach the age of 40 whether fat or thin are harboring some of the germs in their systems. And every case of tuberculosis comes from another, so it is entirely likely that each case of disease in a family was acquired from another member of the family or circle of acquaintances.

Even though the symptoms may not develop until adult life, a person with this disease has probably been carrying the germs in his body since childhood; and this being the case, the other children then no doubt were exposed to the same origin of infection.

MEDICAL ASPECTS OF PEPTIC ULCER*

By A. SPATES BRADY, Jr., M. D.
Charleston, West Virginia

THE subject matter to follow concerning the medical aspects of peptic ulcer has been taken from current literature and has been selected for the purpose of acquainting you gentlemen with some recent work on the gastric and duodenal lesions. It will cover the etiology as we know it, and some of the newer methods of therapeutics from a critical standpoint. For your essayist to present his own views would be presumptuous; to present the viewpoints of the numerous investigators would be impossible in the time allotted. I have, therefore, selected the medical therapeutic methods which are being constantly brought to your attention through the mails.

ETIOLOGY

Concerning the etiology of peptic ulcer we know little and suspect much. To dismiss the condition as purely local is not justifiable since chronicity and spontaneous remission are not characteristic of local lesions. Philosophically (but perhaps unscientifically) we may say that there is constitutional predisposition and tissue susceptibility and that these two factors are present in all patients having gastric and duodenal ulcers. Constitutional predisposition may mean abberrant blood supply to the stomach, increased irritability of the sympathetic-adrenal system, or hyperactivity of the parasympathetics. Tissue susceptibility means that certain portions of the gastric and duodenal mucosa are more readily attacked by peptic digestion than others. In addition to the above predisposing factors, there are the exciting causes. It is generally agreed that these are hypersecretion, hyperacidity, focal infection, pylorospasm and trauma and that any two or more of the above stated may operate.

If the above is accepted as being essentially true it will be seen that the physician can do little about the predisposing factors but can in a measure control the exciting causes. To set the limit to which medical treatment of peptic ulcer shall go before surgery is instituted is the function of the internist, röentgenologist and surgeon acting in conjunction and lies not within the jurisdiction of any one of these three acting alone.

SYMPTOMATIC RELIEF

Histidine monochloride has been introduced to the profession under various trade names. One manufacturer in his frequent letters has indicated that the problem of peptic ulcer is now solved and that the Council of Pharmacy of the American Medical Association in rejecting his product has committed a grievous error. The drug was first introduced by Weiss, Aron and Holtzman, who considered its absence in the body as responsible for the formation of a defect in the duodenum or stomach. To replace this missing amino-acid all that was necessary was to administer it hypodermically. Since its introduction many reports of brilliant results have been submitted. These reports are all interesting to one reviewing them in that they have certain common characteristics, namely, that they are uncontrolled as to material and observation, that they have not been followed for a sufficiently long period of time and that the brilliance of the results increases in direct proportion to the distance of the reporting investigator from this continent. It cannot be denied that symptomatic relief has been afforded in many cases. However, it must not be thought that relief is given in a proportionately greater number of cases than that obtained by other methods of treatment. It must also be remembered that Flood and

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Mullen report clinical improvement in twelve patients given daily injections of normal saline as compared with a controp group of six patients given histidine injections. Until a properly controlled series of treated cases observed over a sufficiently long period of time is available, the efficiency of histidine in the treatment of peptic ulcer must be questioned.

An extract of duodenal mucosa and submucosa has been prepared by Rivers of the Mayo Clinic. This is administered to the ulcer patients in enteric coated capsules and according to Rivers, excellent results have followed. Again, however, the ordinary ulcer regime has been instituted.

HYPERACIDITY

Colloidal aluminum hydroxide was introduced in the treatment of peptic ulcer about 1930. Since hyperacidity is to be controlled the use of this drug is reasonable. It is not absorbed in the gastrointestinal tract and the acid base equilibrium of the blood is not affected. The favorable symptomatic response is probably as much due to its demulcent and astringent properties as to its acid neutralizing power. Jones reports favorable results in x-ray positive ulcer patients. The striking thing about this series of cases is that no hour or two hour feedings are necessary and other medication was not used. This drug may be used in the ambulatory cases in which control is difficult to maintain since it subjects the patient to little restriction in his diet and introduces no unusual feeding schedule.

I will not review for you the various modifications of the Sippy diet for peptic ulcer, parathyroid extract, emetine hydrochloride or the interesting work of Dr. Crile in denervation of the adrenals. I shall not attempt to make a comparison of the results of medical treatment with the results of surgery since uncomplicated cases are ordinarily treated medically and complicated cases treated surgically.

In conclusion it is my conviction that the physician not pursuing investigative work in peptic ulcer should attack the exciting factors of hyperacidity, hypersecretion, pylorospasm and psychic trauma and leave the problem of pathological physiology to qualified clinical investigators.

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PEPTIC ULCER*

By JOHN E. CANNADAY, M. D.
Charleston, West Virginia

ULCERS of the stomach and duodenum are usually considered together for the reason that it is difficult, if not impossible in many cases, to differentiate clinically between the different locations. They are usually characterized symptomatically by pain occurring a few hours after eating. This pain is usually characterized by the taking of alkalies or of food. Unfortunately again, the diagnosis is complicated by the fact that excessive gastric acidity alone, without ulcer, may at times cause about the same general line of symptoms. Only an absolute differential diagnosis can be made by the use of x-ray or by surgical exploration. Naturally it is not proper to resort to the latter means in order to find out the nature of the trouble. A competent röentgenologist can make a diagnosis in approximately ninety-eight per cent of stomach cases, the characteristic ulcer niche being demonstrated by the use of the fluoroscope and being shown on the x-ray film. Ulcers are acute or chronic, usually the latter.

ETIOLOGY

The term "peptic ulcer", was first used by Quincke.[1] The type of ulcer caused by body burns is known as Curling's[2] ulcer.

More than ninety per cent of the chronic stomach ulcers occur in the lesser curvature, however the great majority of peptic ulcers are duodenal. The most frequent ulcer age is that between thirty and fifty.

Etiology: The cause is not known; however, the incidence is greater in the white race than in the colored, and men are more prone to peptic ulcer than women.

Diet may be a contributing cause, likewise the use of alcohol. Peptic ulcer is said to be extremely common among the natives of Abyssinia, who are black. This is thought to be due to their excessive use of red pepper as a condiment. Toxemias of various sorts, such as severe burns may cause the development of ulcer.

It has been pointed out by Cushing,[3] that brain injuries such as skull fractures and concussions of the brain may be followed by peptic ulcer. It was formerly thought and taught that gastric ulcer in particular not infrequently changes into cancer. This doctrine has been all but abandoned. It is thought however, that an ulcer which can not be healed by intensive medical treatment, or an ulcer that is as large as a twenty-five cent piece, is nearly always due to cancer. Some ulcers are of the deep or perforating type, others shallow and superficial in nature.

MALIGNANT ULCERS

Ulcers on the greater curvature of the stomach are more apt to be malignant in nature than those on the lesser curvature. When a cancerous nodule in the stomach begins to break down, the fact that it is exposed to the traumatism of digestion, also the presence of hydrochloric acid, will cause the development of an ulcer. Ulcer of the duodenum is never cancerous except by direct extension of a malignant growth from the stomach side of the pyloric muscle. Many theories have been suggested as to the cause, such as: hyperacidity, corrosion theory, focal infection, traumatism, neurogenic and endocrine influences.

Ulcers occur most frequently in the areas in which the stomach acidity is the most active, but may occur in individuals that lack stomach acidity.

Symptoms: The outstanding symptom is pain coming on from twenty minutes to two and one-half hours after meals, pain being

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relieved by alkali or food, but coming on again a little later.

The incidence of peptic ulcer has apparently more or less of a seasonal nature. That is, the ulcer may appear either in the spring or fall, run a course of a few weeks and heal, to reappear some months later. Ulcers are usually single but may be multiple and may be associated with a generalized gastritis. Multiple ulcers with associated gastritis are said to be quite common in certain parts of Europe, but are not often seen in this country. I have had one such case, occurring in an elderly woman. A diagnosis of possible malignancy was made from x-ray findings. The true character of the trouble was seen at operation and after a sub-total resection of the stomach, the patient made a satisfactory recovery.

OUTSTANDING SYMPTOMS

Among the outstanding symptoms of ulcer are: Epigastric tenderness, often over the ulcer site; at times boring pain felt in the back, occasionally nausea and vomiting which usually relieves the pain temporarily.

Treatment: Treatment should undoubtedly always be medical in the beginning, unless of course, an acute emergency has been developed such as perforation. In the presence of perforation, it may be said that time is everything, for an early repair is usually followed by recovery. The suture line should be reinforced by an omental patch, otherwise the perforation may reoccur near the site of the original lesion.

In the presence of chronic duodenal ulcer, the simplest and mildest form of surgical attack is often the best. If the patient is of proper age, and has resisted adequate medical treatment for a reasonable length of time, gastroenterostomy with or without pyloroplasty is usually effective. If the symptoms are severe and unrelieved by such procedure, resection of a portion of the stomach may become necessary. In dealing with cases of chronic ulcer involving the stomach and not yielding to medical treatment, stomach resection is often the only recourse. Gastroenterostomy may be followed at times by the formation of jejunal ulcers. This complication is not so apt to occur after resection. It must be admitted that there is no ideal form of treatment. In every type of surgical attack, the ulcer if accessible should usually be excised.

Complications of Chronic Ulcer: (1) Acute, local or diffuse peritonitis. (2) Subacute perforation with recurrent attacks of localized peritonitis. (3) Chronic perforation with a walled off loculus and local peritonitis. The acute and subacute perforations usually involve the anterior wall; the chronic the posterior wall.

Acute peptic ulcer, occurs in from fifteen to twenty per cent of chronic ulcer cases, usually between the ages of twenty-five and thirty-five, involving as a rule, the anterior wall near the pylorus. Acute ulcers that perforate are more often near the cardiac end. The opening is usually small, and preceding symptoms are generally absent. In more than twenty per cent of the cases, there is leakage with resulting peritonitis.

ACUTE PERFORATION

(A) Acute perforation may follow a large meal, a jolt, jar or injury preceding symptoms of ulcer. There is (a) violent acute abdominal pain that may cause the patient to fall to the floor, or be unable to move; (b) shock, pallor, cold sweat, appearance of agonizing pain and fear; (c) board-like rigidity of the abdominal wall with fixation of the entire body to avoid pain; (d) shallow, jerky, costal respiration; (e) normal or slightly subnormal temperature; (f) slow, full pulse until peritonitis develops. Pain may be referred to the epigastrium, the right side of the abdomen, the scapular region or back. The rigidity is often more marked over the area of the ulcer and at McBurney's point. Vomiting is absent as a rule, until liquids or food are taken.

Examination may give the signs of free fluid and also evidence of early peritonitis in the epigastrium and right iliac fossa. In from four to twelve hours from the onset, and es-

pecially if morphine is given, a lull may occur in the symptoms which is followed by symptoms of generalized peritonitis. Vomiting of blood or entrance of much blood into the peritoneal cavity is unusual. Subacute perforation is characterized by slow leakage and the walling off of the area by adhesions followed by local peritonitis. Repeated slight leakages may give rise to corresponding exacerbations of pain.

CHRONIC PERFORATION

Chronic Perforation: The ulcer area usually becomes adherent to the liver, pancreas, gall-bladder, colon or other abdominal organs before perforation occurs. The course of the perforation can usually be shown by x-ray.

Diagnosis of Perforation: Peptic ulcer, as a rule, gives rise to discomfort, but not a great deal of pain. Severe pain with an ulcer, usually indicates a complication. Pain of such severity as to cause shock and to require an opiate usually indicates acute perforation. Continued chronic pain not absolutely preventing work, suggests a chronic perforation.

Acute abscess is to be differentiated from a perforated duodenal ulcer by the more violent symptoms and shock from the perforation with evidence of rapid outpouring of fluid and possibly gas into the abdominal cavity, also a preceding history of ulcer may be obtainable. A gall stone attack is generally less severe, is usually transient and is often relieved by vomiting.

Definite Indications for Operation: (1) Symptoms well marked and not permanently relieved by careful medical treatment.

(2) Pyloric stenosis, dilatation of stomach, hour-glass contraction of the stomach and perigastric adhesions producing symptoms.

(3) Acute or subacute or chronic perforation of the ulcer.

(4) Evidence of malignant change.

Comment: In the treatment of duodenal ulcer, the late E. Starr Judd[4] of the Mayo Clinic, favored pyloroplasty combined with the excision of about two-thirds of the pyloric sphincter plus excision of the ulcer.

John B. Deaver,[5] shortly before his death, reported eighty cases, in which the pyloric sphincter had been partially excised, with satisfactory results in most cases.

W. J. Mayo,[6] and also Waltman Walters,[7] are both inclined to favor excision of the ulcer in addition to gastroenterostomy.

Alfred Strauss[8] is the chief proponent in this country of radical gastric resection for the relief of duodenal ulcer. He has followed this method in a large number of cases with satisfactory results.

The members of the Eliason Clinic[9] are favorable to gastroenterostomy as a treatment for persistent chronic duodenal ulcer. They have carefully reviewed their own cases of acute perforation as well as those of others and find that the mortality incidence bears a direct relation to the length of time that has elapsed since the perforation has taken place. Taking all of the cases together, the mortality is about one in four cases. Drainage is contraindicated in early cases, but may be of some help in very late cases. The European statistics are a little better than the American.

F. H. Amendola[10] has suggested a new and simplified approach for acute perforation of peptic ulcer of duodenal type. This particular incision which parallels the borders of the ribs on the right side, apparently possesses a considerable amount of merit.

Sergei Judin,[11] recently reports an unusually large series of perforated peptic ulcers (426 treated by partial gastrectomy). He claims that these patients make quick recoveries and escape many postoperative complications. His death rate, however, for all of his reported cases is 12 8/10 per cent.

CONSERVATIVE TREATMENT

American surgeons have been extremely conservative in dealing with such cases and have advocated generally closure of the opening plus reinforcement with omentum. Some years ago, a few surgeons were advocating that these repairs be supplemented by gastroenterostomy, but this method was not favorably received in this country.

Case Number 47960: Mr. J. M., white male, admitted to the Charleston General

Hospital, November 11, 1935 complaining of pain in abdomen.

History: Patient was thought to have had a peptic ulcer for the past seven years. He had never been x-rayed, but has had attacks of epigastric pain, belching of sour material, pains sometimes before and sometimes one to three hours after meals. No vomiting of blood or tarry stools. Pain is usually relieved by sodium bicarbonate, milk and crackers. Usual childhood diseases. No serious illnesses except the peptic ulcer.

CASE REPORTS

Present Illness: About five hours before admission he was taken acutely ill with sharp pains in epigastrium, slightly to right of midline and just above umbilicus. Pains very severe, sharp, knife-like in character and boring through the back and caused him to double up. He vomited a few times and pains became generalized over upper abdomen and some pain in left shoulder. No respiratory symptoms, but states he has had a slight cold for the past several days. The patient had been seen by his local doctor who advised immediate hospitalization.

Examination: A fairly well developed and nourished white male, age 55 years, in marked abdomined pain. All teeth are absent, and the tonsils are out. There are a few dry râles over the bases of both lungs, posteriorly, but otherwise the chest is negative. Abdomen has a board-like rigidity in the upper portion and marked tenderness all over, more marked just to the right of the midline and above the umbilicus.

Laboratory Findings: Hemoglobin 97 per cent, leucocytes 15,400, neutrophiles 86, Kline negative. Urinalysis one plus albumin, sugar negative.

Operation: On day of admission laparotomy was performed and a large perforating ulcer was found on the anterior surface of the first part of the duodenum. This was closed and reinforced with omentum.

Postoperative Course: Patient had some fever following operation, but this gradually subsided and when he was discharged on November 20, 1935 his condition was satisfactory.

Case Number 50741: J. K., white male, admitted to the Charleston General Hospital, May 23, 1936 complaining of pain in the right side.

History: In 1932 patient first noticed a lump under his right costal margin. This was slightly tender, but not painful and he paid no attention to it. No symptoms attributable to disturbances of the gastrointestinal tract had been noted by the patient. Two weeks previously he had developed an aching pain with some swelling in the right lower quadrant, associated with anorexia and occasional slight vomiting spells. Patient was in bed for four days during which time the aching eased somewhat, but did not disappear. Symptoms had continued without much change except diminution of vomiting for the past week.

Examination: Cachectic white male, approximately fifty-four years of age, with a pale dry, parched skin. Right epitrochlear gland is palpable. Blood pressure 122/70. Temperature 100.6. The chest is filled with asthmatic squeaks. The liver is markedly enlarged, extending two fingers below the umbilicus. The surface and edge are smooth. There are both tenderness and spasm in the right lower quadrant, right upper quadrant, right flank and right costovertebral area.

Laboratory Findings: Hemoglobin 70, leucocytes 18,600, Kline negative. Urinalysis negative.

OPAQUE MATERIAL FOUND

X-ray Findings: On the day of admission x-ray showed a considerable amount of opaque material over the left side of the abdomen and in the left pelvis. There was also apparent a soft tissue tumor in the right upper quadrant, which was seemingly separate from the right kidney. On May 30, 1936, seven days later, another x-ray examination was made, which showed a considerable deformity of the duodenum with a perforating ulcer on the greater curvature and posterior wall.

Operation: On June 2, 1936 an upper right rectus incision was made, and a duodenal ulcer found to have perforated the posterior wall of the duodenum, over the pancreas. This perforation had burrowed in horseshoe fashion upward along side the gall-bladder through the edge of the liver and about half way through the abdominal wall. After dissecting the sinus down to the level of the duodenum, it was found that the surrounding tissues were so friable that it was thought safer to plug the opening with omentum rather than to undertake closure by suture methods. In addition to this a posterior gastroenterostomy with a wide stoma was made.

Postoperative Course: The patient made an uneventful recovery following the operation, and at the time of discharge June 30, 1936 his condition was greatly improved. Subsequent x-ray examination several months later, found the duodenum to be in fair condition.

Case Number 48159: C. W. D., white male, admitted to the Charleston General Hospital, November 25, 1935 complaining of pain in the pit of the stomach and discomfort after eating.

History: For several years patient has had irregular attacks of discomfort in stomach after eating, usually relieved after taking alkalies. About two weeks ago patient had an attack more severe than previous ones and fainted from the pain. After taking alka-seltzer he was able to go to work.

Present Illness: Patient was seized with a severe pain in the stomach and could not straighten up or stand jarring.

Examination: The patient is a well developed, well nourished male. The blood pressure was 130/80; the temperature 100, pulse 80, and respirations 22. Heart and lungs were apparently normal. The abdomen was tense and very tender with some distention.

Laboratory Findings: Hemoglobin 82 per cent, leucocytes 27,300, with 81 per cent polys, Kline negative. Urinalysis negative.

Operation: A diagnosis of ruptured ulcer was made and the patient operated upon the day of admission. Findings: Ruptured gastric ulcer on the anterior surface of the stomach a short distance from the pylorus, with the opening about the size of a lead pencil. A small area about the ulcer was excised and the opening was closed in the usual manner.

Pathological Report: Acute and chronic inflammation of the gastric wall.

Postoperative Course: The patient had a very satisfactory convalescence and was discharged in good condition on December 11, 1935.

Case Number 49338: R. C. T., white male admitted to the Charleston General Hospital, February 25, 1936 complaining of a severe pain in the upper abdomen.

History: For the past three or four years he has had chronic indigestion relieved by soda. Usually had pain in the upper epigastrium about one to one and a half hours after meals, also relieved by soda.

Present Illness: Tonight the patient had a pain in the epigastrium increasing in severity. Was seen by a local doctor who gave him a hypodermic. Some relief was felt for a time, then pain became more severe, and patient had to "bend double" for relief. No nausea or vomiting.

Examination: Well developed, well nourished, white male fifty years old in acute abdominal pain. Abdomen very tender with a board-like rigidity. Patient in moderate state of shock. Temperature 100.2. Pulse 100. Blood pressure 100/70. Rectal examination revealed tenderness on both sides, most marked on the right. Head, neck, heart and lungs essentially negative.

Laboratory Examination: Hemoglobin 78 per cent, red cells 3,520,000, leucocytes 14,-350 with 93 per cent neutrophiles. Urinalysis showed one plus albumin, and two plus erythrocytes. Blood serology was negative.

Operation: On day of admission the abdomen was found filled with a milky fluid, diffuse peritonitis was present. A small per-

forated ulcer was found on the superior surface of the duodenum. This was repaired in the usual manner, the abdomen was aspirated and washed with saline solution.

Postoperative Course: The patient's course was stormy for the first two postoperative days, but then quieted down, the temperature subsided and he progressed satisfactorily to the time of his discharge March 1, 1936.

Case Number 43412: C. W., white male, admitted to the Charleston General Hospital, January 4, 1935 complaining of recurrent duodenal ulcer.

History: Patient was in this hospital about one month ago, when a diagnosis of ulcer was made. Was advised against operation at that time, and medical treatment was suggested, but patient felt that nothing but surgical treatment would be of any use to him. He had a severe attack of pain in epigastrium about three weeks ago. He was feeling well on admission, and states that attacks usually occur about every month.

Examination: Heart and lungs negative. Blood pressure 120/70. Impression: Duodenal ulcer, probably perforated with intermittent leakage.

Laboratory Examination: Urinalysis negative for sugar and protein, acid in reaction.

Operation, January 5, 1935: The omentum and transverse colon were densely adherent to the parietal peritoneum and to one another.

The gastrocolic mesentery was obliterated by old adhesions due to previous operations. The duodenum could not be exposed, hence the site of ulcer was not found. An old posterior gastro-enterostomy was found, and it was noted that the anastomosis had become obliterated. On account of the loss of normal anatomical relations, it was thought advisable not to take down the old gastroenterostomy. However a new gastroenterostomy was done to take the place of the old one which had closed.

Postoperative Course: Patient had an uneventful postoperative course and was discharged on January 21 improved.

Case Number 45512: E. B., white male, admitted to the Charleston General Hospital, June 14, 1935 complaining of epigastric pain.

History: There had been some aching over epigastrium for two weeks. Has not vomited or been nauseated at any time. Food seems to relieve his discomfort. Has had indigestion, sour stomach, pyrosis and gas ever since he can remember. During childhood he had an attack of pain similar to the one that has been present for the last two weeks. One time he was put on a diet for ulcer of the stomach, and as it did not seem to give him much relief he discontinued it after two months. Has had chronic constipation; also has had occasional mild burning on urination for about five years past.

Laboratory Findings: Hemoglobin 104 per cent, leucocytes 12,500 with 85 per cent polys, Kline negative. Urinalysis negative.

Operation: On day of admission a small ulcer was found on the anterior surface of the first portion of the duodenum surrounded by localized peritonitis with a few flecks of fibrinous exudate on the bowel immediately surrounding the perforation. The perforation wound was closed in the usual manner and reinforced with an omental patch.

Postoperative Course: Uneventful, and the patient was allowed to go home in twelve days, at which time, he was feeling quite well.

Case Number 49986: J. C., white male, age forty years, admitted to the Charleston General Hospital, April 5, 1936 complaining of pain in the mid epigastrium.

History: Indigestion for the past two or three days, and the day before admittance to the hospital, was suddenly seized with generalized acute abdominal pain, not relieved by hypodermic of morphine. Today generalized pain in abdomen became very severe.

Examination: An acutely ill white male, of forty years. Temperature 102.6. Pulse 120. There was generalized board-like rigidity of the abdomen, with the point of maximum tenderness just to the right of the umbilicus.

Laboratory Examinations: Leucocytosis of 15,000 and 82 per cent neutrophiles. The urinalysis was negative except for a trace of albumin. The blood serology was negative.

Operation: The patient was operated upon immediately after admission. The peritoneal cavity was filled with a milky fluid and there was diffuse peritonitis. There was a small perforated ulcer on the anterior surface of the duodenum, which was sutured with black silk. The abdominal cavity was irrigated with saline solution.

Postoperative Course: The patient did fairly well for twenty-four hours after operation, but continued to run a high temperature. The course was down hill, however, and he died on April 8, 1936. No autopsy was obtained.

Case Number 48530: McD. K., white male, admitted to the Charleston General Hospital, December 27, 1935, suffering with a pain in the stomach and epigastrium.

History: Three weeks ago the patient began to have a pain in the epigastrium which was relieved by taking food.

Present Illness: This evening, while working the patient was seized with a severe pain in the pit of the stomach which bent him double. He had another attack later in the evening. His abdomen began to be tense and tender and the local doctor sent him to the hospital.

Examination: Patient is a fairly well developed and nourished adult in distress. Abdomen tense and tender. Severe pain in epigastrium. Pyorrhea grade four. No other pathology. Temperature 100.6. Pulse 80. Respiration 24. Blood pressure 110/70. Heart and lungs negative.

Laboratory Findings: Normal blood count except for a leucocytosis of 12,100 with 75 per cent neutrophiles. Urinalysis negative. Blood serology was negative.

Operation: December 28, paramedian rectus incision. On opening the peritoneum gas was heard to escape. Peritoneal cavity was filled with a yellowish fluid. There was a shaggy fibrinous exudate over some of the viscera. On the anterior superior surface of the duodenum was found a perforated ulcer measuring about eight mm. in length.

Postoperative Course: Following the operation the patient's temperature was elevated for four days and then dropped to normal and all symptoms subsided. At the time of discharge January 11, 1936, the patient was on a modified Sippy diet, symptom free.

Case Number 44386: F. S., white female, age 52, admitted to the Charleston General Hospital, complaining of generalized abdominal pain, nausea and vomiting, loss of weight and dysuria.

History: Patient has been troubled for the past five years with indigestion. Has often had nausea and vomiting. Pain in epigastric region. These symptoms have gradually become more severe. She has lost considerable weight. Says that about five years ago, she had an x-ray examination of the stomach and was told that she had an ulcer of the stomach.

On date of March 30, 1935 she was x-rayed and the following reported: "Perforating ulcer, junction of the middle and distal thirds of the stomach, on the lesser curvature. Base is nearly two cm. in diameter, with moderate induration in this area. Duodenum is negative."

Laboratory Examination: March 3, 1935 hemoglobin was 87 per cent, leucocytes 9,-300, red blood count 4,360, neutrophiles 64 per cent. Urinalysis two plus pus, specific gravity 1,002.

Operation: On April 4, 1935 the patient underwent an operation for gastric ulcer, at which time the antral portion of the stomach was resected and a gastrojejunostomy of the Polya type was done. An ulcer was found on the lesser curvature of the stomach. This was about one and five-tenths cm. in diameter. There was an area of infiltration around this ulcer, approximately three inches in diameter.

Postoperative Course: The patient had a normal convalescence and a short time later was checked by x-ray with satisfactory re-

sults. A week ago, January 7, 1937, this patient was rechecked by x-ray. Her stomach was functioning normally and showed no evidence of disease.

Case Number 54191: D. S., white female, age 40, admitted to the Charleston General Hospital, November 30, 1936.

History: Patient has complained of stomach trouble for many years. Shows improvement at times, and then gets worse.

Present Complaint: Symptoms are more severe, and attack has been of two months' duration. There is considerable pain at times. Not much nausea or vomiting. The chief complaint is pain in the epigastrium, reflected to the left side. Patient has vomited blood in the past, but not recently.

X-ray Examination: By Dr. V. L. Peterson, is as follows: "There is a perforating ulcer on the posterior wall, near the lesser curvature of the stomach at the junction of the proximal and middle thirds. There is a palpable tumor within the stomach as well as a palpable mass, extragastric. This would indicate a malignant condition, rather than a benign ulcer. However, the mass could be inflammatory tissue about a chronic ulcer. I believe it should be explored surgically for the final diagnosis depending upon the pathologist's examination of the tissue."

After several days preliminary treatment this patient underwent an operation.

Operation: On December 2, 1936, approximately one-half of the stomach containing a mass about two inches in diameter on the posterior surface. There were a number of adhesions on the posterior surface of the stomach, probably due to chronic perforation of an old healed ulcer. After resection an end-to-side anastomosis was made with the jejunum, posterior Polya type.

Postoperative Diagnosis: Postoperative diagnosis was made as follows: "Polyposis of stomach, occurring around the edges of an old healed ulcer. There are four polyps, each approximately two-thirds of an inch in diameter."

Postoperative Course: Patient made apparently satisfactory progress for several days, then developed bronchopneumonia and died on December 11, 1936. A post mortem examination was made. At this time, it was found that the suture lines of the stomach and small bowel were intact and that there was no evidence of peritonitis. The final cause of death was stated to be: "Purulent bronchitis and bronchiolitis with early bronchopneumonia."

Case Number 52073: D. S., white female, age 49, admitted to the Charleston General Hospital, August 6, 1936, with a complaint of pain in the epigastrium and right upper quadrant, swelling of feet and ankles, shortness of breath and backache.

History: Patient had previously, about twelve years ago, been operated on in another hospital, at which time a gastroenterostomy had been performed for the relief of a duodenal ulcer. Patient states that she was quite comfortable up until a few months before coming to the hospital.

Present Illness: Patient stated that several days prior to the date of admission, she suddenly developed a sharp shooting pain, which started under the right costal margin and radiated through to the right scapular region. After a short while the pain became constant in character. Patient also stated that she had had clay colored stools for about one week, and was jaundiced. She thinks that she had passed some tarry stools lately. Her family physician had told her that she had high blood pressure. After being on her feet for any length of time, she notices that they become moderately swollen, and at times she thinks that her arms and face are swollen. She has moderate shortness of breath on exertion, and has been bothered by palpitation of the heart.

Examination: A somewhat emaciated white female, age 49 years who appears to be moderately ill. Temperature, pulse and respiration, normal. Blood pressure 120/74. Physical examination essentially negative except for tenderness in the right upper quad-

rant of the abdomen, and the mid-lumbar region. No palpable masses in the abdomen. Moderate rigidity of the muscles over the right upper quadrant and in the epigastrium.

Laboratory Findings: White blood count of 10,950. Eighty-two per cent polys. Urinalysis negative. Diagnosis: Recurrent peptic ulcer and possibly cholecystitis.

X-ray Findings: Showed the presence of a good-sized duodenal ulcer.

Operation: Patient was advised to submit to an operation. At this time the gastroenterostomy was taken down, the gastrojejunal ulcer excised. The continuity of both jejunum and stomach were restored and a Judd pyloroplasty was performed.

Postoperative Course: Patient made a good operative recovery but within a few weeks began to complain of symptoms incidental to peptic ulcer. After this she was treated medically for sometime, but without avail and finally it was decided that the only thing to do would be to resect the ulcer in the duodenum and a considerable portion of the stomach. At this time, it was found that there was not only evidence of chronic gastritis but that there was a great deal of scar tissue formation with superficial ulceration of the duodenum adjacent to the pylorus. The first portion of the duodenum along with a little more than half of the stomach were resected.

Postoperative Course: Uncomplicated except for an attack of diarrhea, which was soon controlled, and she was discharged from the hospital September 3, entirely free from discomfort.

Case Number 44260: Mrs. E. T., white female, age 69, admitted to the Charleston General Hospital, March 17, 1935 complaining of tenderness over epigastrium.

History: Since December, 1935, patient has been suffering from pains in the abdomen and under the ribs. She has vomited frequently. Takes laxatives and her stools have been tarry. Lost much weight, and her appetite is quite poor. Patient in the hospital a year ago, at which time she was treated for asthma.

Present Illness: Four days ago patient had a severe hemorrhage of the stomach, blood was bright red, accompanied by pain.

Examination: The patient is in poor general health and nutrition. Poor first sound of heart followed by an early diastolic or late systolic rough murmur. Abdomen has very poor muscle tone and is scaphoid. A mass can be palpated in the upper abdomen, just to the right of the midline. There is some tenderness over upper right quadrant and epigastrium. Dullness hardly reaches the fifth rib, and the edge of the liver is not felt. The liver appears small.

Laboratory Findings: Hemoglobin 91 per cent. Kline negative. Red cells 7,600,000.

AREAS OF ULCERATION

X-ray Report: "Ulcerating carcinoma involving the distal third of the stomach. I would like to re-ray to check the cardia." The second x-ray report was as follows: "There are multiple areas of ulceration throughout the mid-portion of the stomach, with narrowing and loss of rugae folds. The lesion involves the entire stomach. Röentgenologically it was considered malignant, although a mass could not be palpated through the abdominal wall. Syphilis was suggested, and it was asked that this be ruled out before operation. At operation the lesion was found to be diffuse ulcerative gastritis. Pathologically there was no evidence of a malignant change.

Operation on March 23, 1935 with the following findings: On opening the stomach it was found that numerous ulcerated areas of mucoca could be seen. It was also noted that the stomach wall was about three times the normal thickness. There were numerous ulcerated areas on the greater curvature, as well as elsewhere. In view of the history and pathology noted, the diagnosis was made of chronic gastritis with multiple ulcers of the stomach. A subtotal resection of the stomach was done, leaving approximately two-thirds of the stomach, in accordance with the Polya-

Billroth method. Gastric resection, anastomosis between the jejunum and resected end of the stomach.

Pathologist's Report: Acute ulcerative gastritis superimposed on a chronic gastritis.

Postoperative Course: The patient made a satisfactory recovery and has been seen and rechecked several times during the past two years. She has gained in weight, looks well, and says that she has been entirely relieved of her previous symptoms.

TISSUES DAMAGED

In the case of J. K., the tissues surrounding the perforation had been so badly damaged by inflammatory reaction that it was thought best to close this large perforation by plugging it with omentum, rather than to attempt to close it by suture. The immediate results were good, and an x-ray check made some months afterward showed that healing had taken place. (This case was reported at the C. & O. Surgeons meeting at White Sulphur Springs on November 7, 1936.) In a recent number of the S. G. & O., Dr. Waltman Walters,[12] reports a somewhat similar case, successfully handled by the same method.

One of our cases reported (D. S.) illustrates the fact that no one surgical method may bring about a permanent cure. This one gave the following history:

About twelve years previously, she had been operated on in another hospital, for the relief of duodenal ulcer. At this time, a gastroenterostomy was performed. Following this she was quite comfortable for nearly twelve years. She then began to suffer from sharp pain which usually started under the right costal margin and radiated through to the right scapular region. Later on this pain became constant in character. X-ray examination revealed a jejunal ulcer. The ulcer was excised, the gastroenterostomy taken down, and a Judd pyloroplasty was performed. Within a few months she was back at the hospital. An x-ray examination showed a duodenal ulcer. At this time, it was thought advisable to treat the condition radically. The ulcer was excised and about half of the stomach was resected, followed by an end to side union with the jejunum. This patient's condition was relieved, and so far has remained good.

During the past year, four hundred and two stomach cases have been fluoroscoped in the clinic of the Charleston General Hospital. Among these sixty-seven were found to have duodenal ulcer, two gastric ulcer, fifteen gastric malignancy, one diffuse gastritis, two diaphragmatic hernia, two duodenal diverticulitis and one dilatation of the second portion of the duodenum.

Most of the ulcer cases were treated medically. The surgical tabulation is as follows:

Ten operated perforated peptic ulcers, out of which number there were eight recoveries and two deaths.

One bleeding peptic ulcer, sutured with rerecovery.

Four gastroenterostomies for duodenal ulcer with one hundred per cent recovery.

One case where gastroenterostomy for obstruction of third portion of duodenum was done with recovery.

One case of pyloric exclusion and gastroenterostomy which did not recover.

One case of taking down gastroenterostomy, which recovered.

Three pyloroplasties, with one hundred per cent recovery.

Summary: The operative results on a small series of ulcer cases dealt with, most of them occurring during the past year are shown.

The etiology of peptic ulcer is obscure.

SYMPTOMS NOT CLEAR

The symptoms are not clearly defined; the final diagnosis depending on x-ray examination. Every case of chronic ulcer should have the benefit of careful medical treatment; if this fails to give relief, surgery should be resorted to, and that in the simplest and safest form that is likely to give the patient relief.

As regards the grave complications of perforation; the patient's chances for survival depend on the promptness with which the

condition is recognized and surgical repair is made.

Attention is called to the method of closing a perforation of the duodenum by tamponing it with omentum. This method while not recommended for general use, may in an occasional case be of value.

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APPARENT SYNERGISM OF APOMORPHINE AND MORPHINE*

(Report of Case)

By G. R. MAXWELL, M. D. and G. A. EMERSON, Ph.D.
Morgantown, West Virginia

THE effects of apomorphine upon the central nervous system are in general quite dissimilar to those produced by morphine. Since the formation of apomorphine from morphine involves a drastic rearrangement of physiologically active chemical groups within the molecule, resulting in the production of an isoquinoline ring, the destruction of an ether linkage, and conversion of a previously partially saturated ring to a benzene ring and of an alcoholic hydroxyl group to a phenolic hydroxyl group, it would be unusual if the same set of physiological effects were retained. Synergism usually presupposes similar physiological or chemical effects of the synergizing agents, and *a priori* it would appear unlikely that apomorphine and morphine would show synergism.

In animals, apomorphine elicits strong excitant effects, particularly in herbivora which are unable to vomit.[1] These excitant effects are of cerebral origin for the most part, since removal of the hemispheres does away with the characteristic excitant phenomena.[2] Morphine is a cerebral depressant, and its convulsant action, as shown in lower animals, is chiefly spinal; marked cerebral excitement occurs only as an idiosyncrasy. Sollman[3] explains the excitant action of morphine in man as resulting from diminished restraint, rather than from direct stimulation. Possible synergism of excitant effects of the two alkaloids is thus conceivable, but not likely.

RESPIRATORY EFFECTS

Both agents cause death from asphyxia, but the pharmacodynamic mechanisms differ so much that it would be more reasonable to conclude that they should act as antagonists rather than synergists. Morphine is a specific respiratory depressant, while apomorphine quickens respiration. Asphyxia after apomorphine is caused by the irregular violent convulsions which finally interfere with respiration.

If apomorphine convulsions are inhibited by chloral hydrate, the toxic dose is 20 times

*From the Departments of Medicine and Pharmacology, School of Medicine, West Virginia University, Morgantown.

as high as in the normal animal.[3] Most narcotic agents synergize strongly with morphine, however. Thus, indirect animal experiments all tend to indicate that a depressant synergism between the two agents is not likely.

Clinically, on the other hand, certain depressant symptoms are sometimes encountered after the therapeutic use of apomorphine, all of which are referable to the violent nausea. Nausea and vomiting from whatever cause are commonly accompanied by lassitude, a feeling of muscular weakness, cold perspiration and tachycardia. Apomorphine has been used as a sedative in insomnia[4] and hysteria,[5] in subemetic doses.

APOMORPHINE

Rarely, serious depressant symptoms follow the use of larger doses of apomorphine in man, but Cushny[4] states that no actual fatality during apomorphine collapse has been recorded. Sollman[3] lists the symptoms of this unusual action of apomorphine, and states that since such symptoms are referred to the violent nausea, they are reputed to occur most frequently in the rare cases which are nauseated without vomiting after a full dose of apomorphine. Dr. C. C. Fenton has told us of a case which presented the typical symptoms of depression, without vomiting. Sollman[3] holds that such cases are "quite exceptional" in normal individuals, and we are not aware of any report of serious depressant reactions from apomorphine in morphinized patients. Morphine causes a secondary depression of the vomiting center[6] and prevents the emetic action of apomorphine, but the nausea should also be reduced and the previous use of morphine should not predispose to an abnormal reaction from apomorphine. However, in a patient showing the depressant syndrome after apomorphine, morphine might synergize with the resultant collapse, and the occurrence of a serious depressant syndrome after apomorphine in a morphinized patient would afford a poor prognosis.

One of us (G. R. M.) recently observed an abnormal reaction to apomorphine in a patient receiving morphine as well. Since no similar case is given in the literature available to us, the salient points of this case are reported.

Case Report: G. F., age 35, weight 210 pounds, is an habitual alcoholic who usually drinks until emesis occurs, after which he becomes highly excited. Morphine sulphate, 30 mgm., has been used to quiet him and inhibit further emesis, and recuperation after the morphine effect has worn off is usually uneventful. In the present instance, he had been drinking for several days and showed no signs of stopping, and his family requested that he be given something to "quiet his nerves" and produce emesis. Morphine sulphate, 30 mgm., and apomorphine hydrochloride, six mgm., were given reluctantly after a warning that untoward effects might occur. Both agents were given subcutaneously at the same time. The patient vomited three times in 30 minutes, appeared quiet, and was left in care of his family. Within 20 minutes, irregular respiration and cyanosis occurred, and when he was visited again almost immediately, he showed marked respiratory embarrassment. The cyanosis partially cleared under artificial respiration, which was continued until caffeine sodiobenzoate, 0.5 gm., epinephrine hydrochloride, 0.001 gm., and atropine sulphate, 0.6 mgm., were administered. Respiration became more regular and his color improved still further. Dr. Eldon B. Tucker was called to administer CO^2-O^2, after which respiration and color became normal. Gas administration continued at intervals for two hours, after which he appeared normal; this treatment appeared to sober him completely.

MINIMUM FATAL DOSE

Experimental: Since both apomorphine and morphine may act either as convulsant or depressant agents under suitable circumstances, although their usual actions are opposed, both narcotic synergism and convulsant synergism must be considered possibilities. Accordingly, it was planned to give

three-fourths the minimum lethal dose (MLD) of each to mice and observe the responses.

Sollman,[7] quoting Worth Hale, places the "minimum fatal dose" on subcutaneous injection of white mice at 0.6 mgm./gm. for morphine hydrochloride and 0.4 mgm./gm. for apomorphine hydrochloride. The minimum lethal dose of morphine for small animals has been shown not to be constant, however, but is dependent on diet, strain of animal and other factors. A single large group of mice of the same strain and on the same diet was therefore used in all the experiments.

PRELIMINARY RESULTS

Preliminary work showed the mice to be unusually susceptible to both agents, as all mice died after treatment with 0.3 mgm./gm. of apomorphine hydrochloride, or with the same dose plus 0.45 mgm./gm. of morphine hydrochloride, and two of three died after injection of 0.45 mgm./gm. of morphine hydrochloride. All of the 10 mice injected with apomorphine or apomorphine and morphine showed violent convulsions. The mice treated with morphine alone showed marked depression, with mild terminal convulsions. Lower doses were used in the rest of the work.

Of four mice treated with 0.1 mgm./gm. of apomorphine hydrochloride, none died. This dose elicited much weaker convulsions than the dose of 0.3 mgm./gm. used above. Of five mice treated with 0.45 mgm./gm. of morphine hydrochloride followed in 15 minutes by injection of 0.1 mgm./gm. of apomorphine hydrochloride, four died.

Eleven of 15 mice died after subcutaneous injection of 0.2 mgm./gm. of apomorphine hydrochloride, with violent convulsions; 21 or 24 died after receiving 0.3 mgm./gm. of morphine hydrochloride. Ten of 13 mice died after subcutaneous injection of 0.3 mgm./gm. of morphine hydrochloride followed in one hour by 0.1 mgm./gm. of apomorphine hydrochloride. Nine of 10 mice died after receiving 0.3 mgm./gm. of morphine hydrochloride followed in an hour by 0.2 mgm./gm. of apomorphine hydrochloride.

From these results, it appears that apomorphine neither effectively synergizes with nor antagonizes morphine effects in mice. Further work is necessary to discover the effects of small doses of morphine on apomorphine toxicity, but since all mice receiving morphine and apomorphine together in the present study showed violent convulsions, it is doubtful if morphine exerts effects in any way comparable to the reputed effect of chloral hydrate in antagonizing apomorphine.

As a routine demonstration in the course in medical pharmacology, students are shown the secondary depressant action of morphine on the vomiting center.[6] A dog is treated with 10 mgm./kgm. of morphine sulphate, subcutaneously, which produces narcosis and usually emesis; 30 minutes later, administration of two mgm./kgm. of apomorphine hydrochloride does not cause vomiting. Observation of the respiratory rate, and of response to various stimuli, sometimes indicates a transient slight analeptic effect of the apomorphine. Dr. Chauncey D. Leake states in a personal communication that in his experience, dogs more commonly respond to the apomorphine by becoming more deeply narcotized. The morphine narcosis is rapidly becoming maximal at the time of the apomorphine injection, however, and it is difficult to judge accurately the influence of apomorphine. Because of the wide variation in response of dogs to morphine, an impossibly extensive series would have to be studied to yield statistically valid results.

TOLERANCE ESTABLISHED

Co Tui[8] has found that tolerance to the emetic effect of apomorphine may be established in habituated dogs, but that no tolerance develops for the excitant effects. He also reports that a cross tolerance to the emetic effects of morphine or apomorphine develops on habituation to either drug, but that there is no cross tolerance to other central effects. This could be interpreted as indirect evidence that synergism to the narcotic effect

of morphine does not occur with apomorphine.

The influence of the large amount of ethanol, ingested by the patient reported, on the effects of morphine or apomorphine or on precipitating an abnormal reaction to either drug, is difficult to analyze. In the presence of massive doses of ethanol, a depressant substance, it would be expected that any synergism between morphine and apomorphine would be evidenced as a depressant synergism, although in the normal person the excitant synergism would be more probable, since abnormal or excitant effects of morphine occur more frequently than do abnormal or depressant effects of apomorphine. In either case, synergism between the two agents should be considered as apparent, rather than as a true synergism.

Summary: A true synergism between morphine and apomorphine in regard to narcotic effects does not exist. A case of apparent synergism of the two alkaloids is reported, and is interpreted as an abnormal depressant reaction to apomorphine which occurred fortuitously in a morphinized patient. In such cases, morphine may synergize with the depressant symptoms due to apomorphine, and energetic treatment of the collapse is indicated. Since danger of the occurrence of such abnormal reactions is constant though small, it is recommended that apomorphine should not be given to morphinized patients under any circumstances.

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DERMATITIS ECZEMATOSA DUE TO BUTESIN PICRATE

By O. G. KING, M. D.
Bluefield, West Virginia

BUTESIN picrate ointment is a chemical combination containing 63 per cent butesin (dinormalbutyl-p-aminobenzoate trinitrophenol) and 37 per cent trinitrophenol (picric acid). This ointment was introduced to the market about 1926. The literature shows it to have been a fairly frequent cause of dermatitis in degrees varying from mild to severe. According to statistics compiled by the Inland Steel Company, a dermatitis develops in a ratio of about one in 6,000 cases.

A brief review of the subject would seem timely, inasmuch as minor household burns are so frequent and since sunburn has become a national prerequisite to good health. The majority of these cases are home treated; the preparation most commonly applied is butesin picrate which is popular with the physician and the laity alike, and has found its place in the medicine cabinet alongside the iodine bottle. Members of the family often will tell you "All cuts are treated with iodine, and all burns with butesin pictrate." Due to its more pronounced analgesic and anesthetic qualities, I believe that butesin picrate has superseded unguentine in general use.

POSSIBLE REACTION

Inasmuch as the preparation has attained such widespread popularity, it behooves the profession not to lose sight of the reaction which may be expected with certain individuals. No extensive area should be treated without first giving the possible reaction thorough consideration.

I have been unable to find in the literature the report of any case of dermatitis resulting from the use of ophthalmic butesin picric ointment or butesin solution which is often used in eye conditions, but I dare say these do occur.

Pusey and Rattner, in 1929, reported the first case of sensitivity to butesin picrate, and made mention of two others. Their patient applied the ointment to a mustard burn, and there followed an acute weeping vesiculobullous eruption which cleared up in a few days upon withdrawal of the drug and the use of 0.5 per cent aluminum acetate solution and cold cream containing zinc oxide. The same dermatitis reappeared one week later following the use of a dress which was worn when the butesin picrate had been used. Under the treatment outlined above, the condition again subsided. This patient refused patch test.

Jackson, in 1930, reported five cases of dermatitis due to butesin picrate and three due to trinitrophenol solution. One of his cases, a nurse who handled trinitrophenol in the operating room, was exceedingly sensitive, as a patch test was followed by a severe local and generalized erythematous and vesicular eruption.

Four more cases were reported by Kelly (1932), who pointed out that an alcoholic solution of trinitrophenol may often cause a dermatitis. He advised a patch test whenever the ointment of butesin picrate is to be extensively used.

Also during the year 1932, Fox reported a case of generalized exfoliative dermatitis in a laborer who had applied butesin picrate to an infected abrasion on his leg.

Ayres and Anderson, in their discussion of the patch test in the diagnosis of contact dermatitis reported two cases of dermatitis due to butesin picrate which had been applied following an adhesive blister and sunburn, and another that was positive to the patch test. A patch test done on 47 private cases for sensitivity to various drugs showed three positive for butesin picrate.

In October, 1933, Sulzberger and Wise reported four more cases of dermatitis due to butesin picrate and gave quite a comprehensive discussion of the subject. They pointed out that the epidermis is probably the seat of the sensitivity, and presented clinical evidence to prove that their cases showed dermatitis medicamentosa due to hematogenous distribution. They further pointed out that butesin leads to a follicular eruption with marked edema and pruritis with little or no erythemia and a rash that persists for several weeks; whereas trinitrophenol causes a diffuse erythemia with vesiculation that desquamates and heals quickly.

CASE REPORTS

My purpose in presenting these cases is to bring up a question which to my knowledge has not as yet been touched. I propose to offer the theory that the lymphatics play a probable rôle both before and after the drug or toxic agent reaches the blood stream. True, two cases do not warrant generalization. However, it opens the question to discussion. If the probability is kept in mind, it will eventually be either proven or ruled out.

Case No. 1: H. B., a white female, age 24, entered St. Luke's Hospital March 16, 1937.

The family history was irrelevant. Past History: Patient had been divorced about one year. Had had the usual childhood diseases with good recovery. Tonsillectomy in 1915, and appendectomy in 1936. No history of asthma or other sensitivity was obtained.

Present illness began when the young lady, going about her duties at a soda fountain, accidentally brushed her right elbow against an electric toaster, raising a blister about the size of a ten cent piece. Butesin picrate was applied by the druggist and the burn dismissed as trivial. However, the patient continued daily to paint the burned area with 2 per cent aqueous solution of gentian violet. Three days later she noticed an unusual discomfort, and was seen in the hospital as an out-patient. Around the burn was found a considerable amount of skin reaction, localized, however, and about the size of a silver

dollar. The area was scarlet red, and there were no vesicles present. Butesin picrate was applied rather freely over the entire area and it was bandaged. In less than twelve hours, the arm began to feel uncomfortable. In twenty-four hours, there was a noticeable degree of swelling and redness which extended from the burned area upward. After another twenty-four hours, the writer visited patient in her home and found her incapacitated due to the swelling and general discomfort.

Upon admission to the hospital, she appeared to be in considerable distress. This was the fifth day of her illness. Up until two days previously, she had been able to continue with her work.

Physical examination at the time revealed a small denuded and weeping area one inch above the right elbow on posterior aspect of arm. A few small vesicles were noted around this lesion. The arm was enlarged one-third its normal size from the burned area upward to and including the shoulder. This edema included the axillary space and also the anterior and posterior chest. The skin felt hard and tight, and appeared scarlet over the entire edematous area. The picture presented could not be differentiated clinically from lymphangitis.

Shortly following her admission, there appeared on the right side of the neck and face irregular patches of a scarlet flush which later became confluent. This process continued until it became a more or less generalized erythemia. The eyelids became so edematous they appeared to be closed. A most noticeable feature of the erythema at this time was that it appeared to be more pronounced over the extremities, right chest, head, and neck, and over the trunk more scattered and of a paler hue.

Twenty-four hours following admission, there appeared bullae over hands and feet; some as large as a twenty-five cent piece. They were equally thick over the dorsal surfaces, palms, soles, and in between the fingers and toes. No vesicles or bullae appeared in any other place over the body.

Four days following admission, the skin rash had begun to fade and the bullae were breaking from pressure.

On the twelfth hospital day, the patient appeared to be well except for a faint trace of the rash over her right posterior chest. The skin generally was desquamating and the bullae and burned area had healed to such a degree that there was no danger of secondary infection. The entire hospital course was afebrile. Patient was discharged as convalescing. It will be noted that this was the eighteenth day following the burn, which made a total disability of 16 days. She attempted to return to work two weeks later, but after four and one-half hours found it impossible because of painful feet and legs. After a three weeks' rest, she again returned to work, and was able to carry on without pain or discomfort. This patient lost a total of 50 days from work, to say nothing of her discomfort and inconvenience.

PATCH TEST

This patient had had such a siege of illness from a trivial burn that nothing was said about a patch test. Not long after her second return to work, she again brushed against the same electric toaster, raising a vesicle on the dorsum of right thumb. Butesin picrate was applied by the druggist. Patient mentioned that she was sensitive to it, and all that was possible was removed and a bandage applied. I saw her two days later, and there were a number of small vesicles and a definite local reaction. See Fig. I, showing the accidental patch test five days following the application of the butesin picrate. This burn occurred two months following the original one and subsided without any treatment.

A patch test, made October 16, 1937, showed this patient to be very sensitive to trinitrophenol and negative to butesin.

Discussion: This case showed a severe dermatitis venenata due to external contact with trinitrophenol one of the ingredients of butesin picrate ointment, and also a dermatitis medicamentosa due to absorption and hematogenous distribution which explained the

secondary widespread erythematous and bullous eruption. From a review of the four cases reported by Sulzberger and Wise, I am inclined to believe that this case was very sensitive to trinitrophenol and perhaps little or none to butesin. Their impression was that trinitrophenol causes a diffuse and severe erythema with vesiculation that de-

Fig. 1. The Accidental Patch Test Five Days Following the Application of Butesin Picrate.

squamates and heals quickly, whereas butesin leads to a follicular eruption with marked edema and pruritis and little erythema. I believe these statements are true. Most of the clinical evidence in this case points to and fits in with trinitrophenol sensitivity. The patch test positive for trinitrophenol and negative for butesin seems to verify this observation. The marked edema which occurred will have to be explained on some other basis in view of the fact that aside from the edema there was no clinical evidence of butesin sensitivity. There was clinically a well marked lymphangitis of upper right arm, shoulder, anterior and posterior chest, and also along the neck, which could scarcely be explained by contact. These areas had so much edema that the patient complained of a great deal of pain. Their appearance made one think that within 24 to 48 hours there would be localized abscesses ready for drainage. However, the afebrile course and the absence of signs of secondary inflammation were evidence against the type of lymphangitis usually encountered. I agree with Sulzberger and Wise that the epidermis is probably the seat of sensitivity and that the dermatitis medicamentosa due to hematogenous distribution can hardly be disputed. I am of the opinion, however, that the toxic agent first enters the intercellular lymph spaces of the epidermis and that its next action is directly upon the cells, causing histamine to be released in the cells which in turn is responsible for the edema. From the intercellular lymph spaces the toxic agent most likely enters the lymphatic vessels and in this case probably entered the blood stream via the right lymphatic duct. It was of interest to note that the bullae appeared only on the hands and feet, giving plausible evidence that the toxic agent must have reached the general circulation and therefore was deposited in sufficient quantity at the extreme end of the arterial tree to cause a skin reaction of sufficient severity to result in multiple bullae varying in size from a dime to a quarter. Another explanation is the factor of time taken for the interchange of the substance from the arterial to the venous circulation. Still another theory that suggests itself is that the toxic agent might have re-entered the intercellular spaces. This possibility, I think, can be borne out by the appearance of the general edema in the bullous areas. Additional clinical evidence of the possibility was the fact that the erythema appeared more pronounced over the distal parts of the extremities and gradually faded as one looked proximally.

ACUTE SUNBURN

Case No. 2: Mrs. W. S. C., a white female, age 40, entered St. Luke's Hospital, July 14, 1936.

Her family history was negative. The past history showed that she had had the usual diseases of childhood and pneumonia with good recovery. She had always enjoyed good health and her habits were good. No history of sensitivity was elicited. This patient's chief complaint was sunburn with burning and itching. She stated that on July 10, 1936, she took quite a bit of sunshine in her bathing suit at a nearby resort. That night she felt generally uncomfortable over the exposed areas, so she applied butesin picrate rather

freely. This gave her much relief and she was able to pass a fairly comfortable night. The following day, she became very uncomfortable with burning and stinging all over her body. She stated that she was so uncomfortable that she could not lie in bed. This patient was visited and was found to have a follicular eruption with marked edema. The erythema was not marked except over sunburned areas. After two or three uncomfortable days and nights, she was finally persuaded to enter the hospital.

BUTESIN SENSITIVITY

Physical examination upon admission revealed a married woman, age 40, who appeared quite uncomfortable from an acute dermatitis and sunburn. Her temperature was 98.6, pulse 78. There was noted a general follicular skin eruption with marked edema. The sunburned areas showed marked erythema which faded out over the area which had been protected by her bathing suit. The demarcation was quite noticeable. Her eyes were quite injected and swollen. Her general physical condition was good. This patient was very uncomfortable during most of her hospitalization. It was necessary to give her a lot of sedative and sometimes morphine for relief of pruritis. The dermatitis did not show much improvement until after the third week. She was discharged at the end of her fourth hospital week and was not able to attend to her household duties for two weeks after her return home.

A patch test done on this patient June 10, 1937 gave a positive reaction for butesin and negative for trinitrophenol — one per cent solution in alcohol.

Discussion: This case merely illustrates the usual case of butesin sensitivity. There was a follicular eruption with marked edema and pruritis and little erythema except over the sunburned area. The question of hematogenous distribution in this case could hardly be settled as most of the body naturally was in contact with the drug due to such extensive application. However, the marked edema was general which lends clinical evidence that it at least penetrated as far as the intercellular lymph spaces.

Summary and Conclusions: 1. Two cases of sensitivity to butesin picrate ointment are presented. The patch test showed one to be sensitive to trinitrophenol and the other to butesin.

2. The local and general reactions can quite often be very severe from butesin picrate, to say nothing of discomfort and time lost. The case sensitive to trinitrophenol was hospitalized two weeks and lost a total of 50 days from work; whereas the one sensitive to butesin spent four weeks in the hospital and was not able to work until after the sixth week.

3. The possible part played by the lymphatics both before and after the toxic agent enters the blood stream is suggested and left open for personal opinion and further observation.

4. Treatment consisted of withdrawal of butesin picrate, bed rest, symptomatic relief, wet dressings of five per cent tannic acid and boric acid ointment.

St. Luke's Hospital

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THE MARRIED PARTNER

The sooner young folks are willing to respect the individuality, rights and needs of their chosen life partner, the quicker the problem of a "ball and chain" existence will be solved for married couples, Dr. H. S. Rubinstein declares in his article "Mates and Mismates" appearing in the December issue *Hygeia.*

STREPTOCOCCIC MENINGITIS

(Review of a Case Treated Successfully with Sulfanilamide)

By THOS. G. FOLSOM, M. D.
Huntington, W. Va.

It is not unusual to find reports of streptococcic meningitis treated successfully in the current literature since the introduction of sulfanilamide. This case has been chosen for publication as it presents three interesting phases:

1. An extremely rapid and virulent infection.
2. Recovery from what was apparently a ruptured brain abscess, and
3. Because sulfanilamide was the only specific type of treatment given.

Case Report: J. W., a white male, age 11, was admitted to the Chesapeake and Ohio Hospital, September 3, 1937. One week before admission the patient had been swimming in a local pool. Two days after swimming the boy complained of a right earache and was seen by the family physician, who prescribed the usual conservative treatment of nose drops and ear drops. In two more days, the right ear was opened by an otologist. On the third day after the myringotomy, I was called to see the patient, who, at this time, presented typical signs and symptoms of meningitis. It is rather surprising to note that all of the preceding events occurred within a week's time, to a boy who had never had any previous ear trouble.

SPINAL PUNCTURE

The spinal puncture done on admission revealed cloudy fluid under increased pressure. The cell count was 202, mostly polynuclears. The smear showed a short chain streptococcus, later found to be non-hemolytic.

Treatment: Since the ear was evidently the focus of infection, a simple mastoidectomy was done by Dr. F. O. Marple of this city. The mastoid involvement was quite extensive. Further treatment consisted of the administration of sulfanilamide, gr. V, q.4.h. by mouth, and a one per cent solution of the same drug in saline, given daily intrathecally. In addition, the usual supportive treatment followed consisting of infusions, intravenous glucose, blood transfusions, and prontosil given subcutaneously on two occasions during an interval when the patient was unable to swallow.

NURSING CARE

The interest and cooperation of the house physicians were a great aid. Special nurses, of course, were necessary, as the patient required almost constant attention. The nursing was extremely well done, and I believe played an important part in the favorable outcome obtained.

Laboratory Findings: The Wassermann and blood culture were negative. September 4, 1937, morning after admission, R. B. C. 2,070,000. Hb. 49 per cent. W. B. C. 10,200. Polynuclears 85 per cent. Lymphocytes 15 per cent. The anemia indicated by the blood count was not evident clinically, so sulfanilamide was given regularly. September 6, 1937: The R. B. C. numbered 2,540,000, and the Hb. 60 per cent, so it was felt that the anemia was more the result of the patient's virulent infection rather than the result of giving sulfanilamide. This anemia persisted but gradually improved after the transfusions. The highest cell count on the spinal fluid was 600, the third day after admission. Ten days after admission the cell count had fallen to 40. Smears were positive for streptococci until September 9, 1937, the sixth day after admission. The spinal fluid cultures were first negative on September 12, 1937.

The patient at this time, ten days after admission, was clinically much improved and

his temperature was normal. With the spinal fluid being essentially normal, it was felt that a cure had been effected. The only residual was a sixth nerve paralysis on the right side. Two days later, on September 15, 1937, the patient became suddenly worse, his temperature rising to 105°. He was semicomatose and his condition grave. Fifty c.c. of turbid spinal fluid were withdrawn under increased pressure. The cell count on this fluid was 5,000. Smears and cultures were again positive for streptococci. Sulfanilamide was again given as before, and the mastoid reopened and explored. The same evening cistern and lumbar punctures were done and 100 c.c. of very cloudy spinal fluid withdrawn, after which the patient promptly had a convulsion. Two days later the spinal fluid was clearing rapidly, the cell count having fallen to 335. At this time the smear was negative for streptococci. The following day, September 18, 1937, the cell count was 120, and the smear and culture were both negative. In four more days, the fluid was essentially normal, the cell count being 25.

NO SEQUELAE

The patient was dismissed September 25, 1937, the only residual being a sixth nerve paralysis on the left side, which appeared after the recurrence. The sixth nerve paralysis on the right side had disappeared. When last seen, November 20, 1937, the patient was entirely well, no sequelae remaining.

Comment: Sulfanilamide was undoubtedly a valuable aid in the treatment of this case. The patient received gr. V. p.4.h. by mouth as long as the spinal fluid cultures were positive. In addition approximately 30 c.c. of one per cent sulfanilamide in normal saline were given intrathecally each time a spinal drainage was done as long as the cultures were positive. In all, 20 lumbar and four cistern punctures were performed. Lumbar punctures were done once a day until the recurrence, when for three days the spinal drainage was done twice a day. At this time also the cistern punctures were done.

I have felt that a ruptured brain abscess was encountered during the course of this child's illness rather than a recurrence of the original infection for the following reasons:

1. The sudden onset of alarming signs and symptoms with a spinal fluid cell count of 5,000 on the twelfth day after admission, when the patient had been considered nearly well just two days before.
2. Fifty c.c. of turbid fluid were withdrawn the morning after the patient's setback and 100 c.c. the same evening.
3. Rapid clearing of the fluid.
4. Rapidity with which the smears and cultures became negative the second time.

There is a strong possibility that this abscess was nearly sterile because of the sulfanilamide therapy or the patient almost certainly would have expired. This may be a clinical example of the recent theory advanced by Bliss and Long, that sulfanilamide acts by producing a "bacteriostasis."

The mortaltiy rate for streptococcic meningitis up to 1937 was reported to be from 95 to 100 per cent. It is comforting to know that we now have at our disposal, an effective drug which can be used in the treatment of this disease.

Needless to say, in meningitis of streptococcic origin, it is imperative to remove the focus of infection whenever possible.

503 Professional Bldg.

HABITS AND ENURESIS

Enuresis seldom develops in children who are happy, declares Dr. Herman M. Jahr in the fifth article in his series on "Bab Habits in Good Babies" in the December *Hygeia.*

This is the case in spite of the fact that most youngsters thus approached deny any disagreeable feature in their environment. As a rule the child himself is unaware, consciously at least, of the situation which brings about and maintains the annoying habit.

Whether enuresis is a means of drawing attention or a defense reaction or a reversion to infantile pleasure, the habitual bedwetter has ample cause for discontent in his surroundings.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

When is it safe for the physician to certify that his tuberculosis patient is free from infection? The practice of making repeated sputum examinations before declaring a patient bacillus-free is commendable. But apparently dependence on sputum examination alone is not enough. Evidence is accumulating to show that tubercle bacilli may be recovered from the stomach in cases in which sputum examinations have been repeatedly negative. Two Swedish workers report the results of their extensive experience with gastric lavage and warn against the false sense of security that may arise from failure to demonstrate the tubercle bacillus by the usual methods. Abstracts of their paper follow.

The Importance of Gastric Lavage: Gullbring and Levin of the City of Stockholm Tuberculosis Hospital at Söderby, after reviewing the literature on gastric lavage for the recovery of tubercle bacilli, report the results of gastric lavage in a series of 348 adult tuberculous persons in whom there was an absence of sputum, or who were bacillus-free when tested by the usual methods.

Technique: Gastric lavages were made on a fasting stomach with 100-200 cm. of sterile water with sterile tubes and vessels. The sputum-like constituents were separated from the lavage water by means of sedimentation and centrifugation and the centrifugate was examined by means of:

a. Direct preparations on the sediment, stained according to Ziehl-Neelsen
b. Cultures on egg substrate according to Hohn's method after pre-treatment with 10 vol. % H^2SO^4
c. Inoculation on guinea pigs, which were examined postmortem after six weeks.

A test was considered positive whether culture alone, or the guinea pig test alone, or both at the same time, were positive.

The guinea pig test proved to be the most sensitive. Only in a small number of cases were the cultures alone positive. A single negative lavage is but slight proof of the absence of tubercle bacilli, therefore the patient should be lavaged two or three days following the first test in order to obtain more certain results and to make the period of waiting for the results as short as possible. This method, however, is too expensive for routine practice and the authors propose a further simplification as follows: The patients are lavaged on three successive days but the lavage fluids from each day are saved, and the total sediment is injected into one or two guinea pigs.

For the entire group of 348 cases supposed to be bacillus-free, 55 per cent were shown by gastric lavage to be excreting tubercle bacilli.

Value of Gastric Lavage: The gastric lavage method for adults has several clinical and social advantages for it is the most sensitive test we know of for proving the excretion of tubercle bacilli from the lungs. From the diagnostic point of view it is valuable particularly in cases of pleuritis and in cases in which the röentgenological evidence is doubtful. It is often difficult to decide whether a lung infiltration is to be interpreted as tuberculosis, pneumonia, a limited pleuritic effusion, or a tumor formation. Ring shadows, enlarged intrathoracic glands and other conditions may be confusing.

Therapeutically the test helps to judge indications for active treatment and pneumothorax, particularly. Early collapse is often strongly indicated but proof of tuberculosis activity is insistently demanded before instituting so radical a treatment as pneumothorax. To wait several months until unquestionable symptoms may mean loss of the golden opportunity. If tubercle bacilli are found by gastric lavage, it means that there is pathological activity somewhere and that active measures are called for.

From the point of view of infection the test is of great significance. The main task of the campaign against tuberculosis is to diminish the risk of infection and to eliminate the sources of infection. Whether or not children in whom tubercle bacilli are found by lavage are infectious, is still under lively discussion and the question is not finally settled. But unquestionably, the demonstration of tubercle bacilli in the stomach of an adult always implies a damage to the parenchymal or bronchial wall and certainly such a person should not be certified as free from the possibility of transmitting the disease. As a routine procedure, a certificate may justifiably be granted if there is no sputum or if repeated examinations of sputum show it to be bacillus-free. But in the case of teachers and other adults in close association with children, a gastric lavage should be performed (in addition to other tests) before issuing the certificate.

The authors feel, that in view of these surprising results, the borderline between "open" and "closed" tuberculosis is now obliterated.

President's Page

In my first appearance on this page as the titular head of the West Virginia State Medical Association I want my first official act of record to be a pleasant duty. Without display of rhetoric, brief almost to token form, but with a simplicity characteristic of sincerity, in the name of every member of our Association I thank our retiring President, Dr. W. S. Fulton, for the year he has given us, packed full of useful service at the expense of much self sacrifice. Every Vergil does not have a Maecenas; rarely does an organization have such a leader as Dr. Fulton. As a good friend, and as a counselor wise from experience, we shall continue to lean heavily upon him during our term of office.

In assuming the duties of the honorable office to which you have elected me, I pose not as one whose natural ability or professional attainments have fitted him for leadership; but as an humble example of the average physician. Obligated to no clique or faction, open minded as to policy, willing to work with and for you, above all else desirous of promoting the healthy growth of organized medicine, I ask your loyal support and wholehearted cooperation.

All is not serene in our profession in its relationship to the public; we may be facing a crisis. If we were to accept at face value the pronouncements of certain foundations and self-appointed committees we should fear imminent disintegration. Your President does not feel that the medical profession is on trial. Its history, traditions, and present attainments are things of which to be proud. This does not preclude the recognition of certain weaknesses and imperfections in the structure of our organization. Lay critics as well as pessimists within our own ranks err, however, in not recognizing that the imperfections of medicine are but a single manifestation of innumerable instances of social maladjustment, world wide in scope, and evidence of a changing social order. Lengthy reports of endowed foundations have only elaborated on our own conclusions; wisdom, from without or within, has not yet proposed a satisfactory cure. These difficulties are not insurmountable if approached seriously and deliberately. What we need most to fear is a hasty attempt, governmental or otherwise, to settle a problem by fiat which requires years of evolution for its solution.

Thinking of the internal affairs of our State Association I know of no better advice than to read over again the second paragraph of Dr. Fulton's last President's Page. Though he has not told me so, I feel that Dr. Fulton has summarized in that paragraph the conclusions of a year's careful observation of our problems. Let every county society purge itself of pettiness and selfishness. If we must have politics let it not be petty. Let us unite our efforts to confound our enemies; let us think of the next generation who shall have to carry on our work.

President.

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DR. FULTON - DR. WADDELL

Closing one of the most successful administrations in the Association's history, Dr. W. S. Fulton, Wheeling, retires from the Presidency on January first. He will be succeeded by another of West Virginia's most

Dr. W. S. FULTON

able physicians, Dr. C. W. Waddell of Fairmont. Speaking for the Association membership, we express our sincere gratitude to Dr. Fulton for his year of splendid service, and we wish a successful and happy administration for Dr. Waddell.

Perhaps the two chief accomplishments of Dr. Fulton's administration were the successful establishment of the Department of Adult Physical Rehabilitation and the enactment of the compulsory immunization law for diphtheria and smallpox. These are tangible accomplishments; results that can be pointed to with pride. But even more important than these tangible assets, Dr. Fulton has given our Association a spirit of courage and enthusiasm that will serve us well in the years to come.

Dr. C. W. WADDELL

We welcome Dr. Fulton to the Chairmanship of the Association's Council. We welcome Dr. Waddell to the Association's Presidency. With two such splendid leaders at the helm in 1938, we predict another banner year for organized medicine.

NEW YEAR'S GREETINGS

At this particular season of the year we pause to extend New Year's Greetings to the readers of the JOURNAL. We hope that the

year 1938 will bring peace and happiness and prosperity to the medical profession, individually and collectively. To our own County Medical Societies and our neighbor state medical associations we wish a year of successful accomplishment. And to every Association member, may we express the hope that among your New Year's resolutions will be a firm resolve to join hands with all your confreres and present a united front against those who would take from you the right to practice medicine as an individual.

ANOTHER STRONG BOY

Professor George Cary Earnist, Suite 1802, 580 Fifth Avenue, New York City, is the originator of "The Daily Five." In a recent communication written to "Dear Friend," Professor Earnist stated that his Daily Five, "unlike any other system of exercise, acts upon the internal organs of the body . . . it will develop good health, dynamic energy, mental alertness and personal power."

Ordinarily we would have no particular interest in one of the New York strong boys, but Professor Earnist has attracted our rapt attention with a testimonial on the stationery of the West Virginia State Medical Association. In a special pamphlet of endorsements is a photostatic copy of a glowing tribute to the Earnist system, on an Association letterhead, and ending with this statement, "I most sincerely recommend him (Earnist) to all regardless of their present condition."

The signature on the above letter is that of W. S. Link, M. D., Councillor of the Fourth District. Above the letter in red ink we find, "Medical Association Recommends The Daily Five."

We call this to the attention of our readers for the purpose of pointing out to what extremes the strong boys will go for medical recognition. A perusal of the officers listed on the Association letterhead shows that they served in 1911 and that the writer of the letter is long since dead.

SOUTHERN MEDICAL MEETING

Approximately 75 West Virginia doctors and their wives attended the thirty-first annual meeting of the Southern Medical Association in New Orleans on November 30 to December 3, 1937. Dr. J. W. Jervey, Greenville, South Carolina, was elected president. Dr. R. J. Wilkinson, Huntington, was named a member of the Council to succeed Dr. J. R. Bloss.

The Southern Medical program was considered one of the best in years and the total registration was more than five thousand. Among the West Virginia doctors registered at the meeting were:

Doctors Lemual C. McGee, Elkins; M. H. Porterfield and wife, Martinsburg; R. J. Wilkinson, Huntington; Andrew E. Amick and wife, Charleston; Jerome E. Andes and wife, Morgantown; Russell B. Bailey, Wheeling; Harry E. Baldock, Charleston; Lewis J. Blanton and wife, Fairmont; James R. Bloss and wife, Huntington; Fred E. Brammer and wife, Dehue; A. V. Cadden and wife, Hopemont.

Charles B. Chapman, Welch; V. T. Churchman, Charleston; T. F. Farley, Holden; Clement E. Fenton, Morgantown; R. M. Fisher and wife, Weston; C. P. S. Ford, Huntington; W. S. Fulton, Wheeling; John C. Kerr, Wheeling; A. K. Kessler, Huntington; Luther R. Lambert and wife, Fairmont; Joseph W. Lyons, Holden; Roy Ben Miller, Parkersburg; J. Hallock Moore, Huntington; M. B. Moore and wife, Huntington; T. W. Moore and wife, Huntington.

Hu Crim Myers, Philippi; Berlin B. Nicholson and wife, Parkersburg; C. J. Reynolds and wife, Bluefield; W. H. St. Clair and wife, Bluefield; J. Thomas Sasser and wife, Huntington; L. Phelps Stanley and wife, Pine Grove; John H. Steenbergen and wife, Huntington; R. B. Talbert and wife, Martinsburg; H. V. Thomas and wife, Clarksburg; Walter E. Vest, Huntington; Robert S. White and wife, West Union; R. S. Widmeyer, Parkersburg.

EARLY TREATMENT

When a cancerous growth affects the skin, where it is usually quite apparent, early cases can be cured in from 90 to 95 per cent of instances by the judicious use of one or more of the generally recognized procedures, x-rays, radium or surgery, Dr. Henry K. Pancoast declares in his article "X-Rays—Their Use When Cancer Comes" which appears in the December *Hygeia.*

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

COUNTY HEALTH UNITS

It has long been assumed and often stated that the protection, preservation and promotion of public health is one of the essential functions of government but due to the fact that in past years the public mind has been trained to concentrate upon curative rather than preventive medicine, this responsibility of governmental agencies has not received the attention and financial support it deserves.

The result has been that entirely too large a gap has developed between what is actually known in preventive medicine and what is being practiced. Within the past two years, however, the Federal government as well as state governments have appropriated large sums of money for public health work. This has enabled public health administrators to expand their programs and extend the benefit of full-time health services to a larger percentage.

It has been proven, through years of experience, that the soundest and most economical way to administer public health is through the full-time health unit, that is, a service which is conducted by personnel employed on a full-time basis with special training in the field of public health administration. This has been the method of expanding the work, for the most part, in practically all of the states. However, in many instances it has been necessary, due to sparsely settled and scattered population and lack of finances, to modify this method to some extent. This modification has taken the form of a combination of two or more counties into a health district for the purpose of extending full-time health service to the people in these areas. It must be admitted that the district plan is not nearly so satisfactory as the individual county unit, due to administrative difficulties.

The success of either the full-time county unit or the district health service depends upon several factors, among which might be mentioned well-trained personnel, adequate financial support and a project extended over a period of years, as well as the full support and cooperation of the people over whom the health department has jurisdiction.

In West Virginia the following sixteen counties have a full-time county health officer, sanitary engineer, two nurses and a clerk:

Berkeley, Boone, Brooke, Fayette, Hancock, Harrison, Kanawha, Logan, Marion, Marshall, Monongalia, Ohio, Preston, Raleigh, Wetzel, Wood.

In addition there are twenty counties which are receiving the benefits of full-time health service through the district plan. These health districts are as follows:

No. 1—Elk River District: Clay, Braxton, Nicholas, Webster.

No. 2—Greenbrier District: Greenbrier, Pocahontas, Monroe.

No. 3—Jackson District: Jackson,* Mason, Putnam, Roane.

No. 4—Lewis District: Lewis, Calhoun, Gilmer, Upshur.*

No. 5—Eastern District*: Hardy, Grant, Mineral, Hampshire, Morgan.

All of these counties, whether under the county unit or district plan, are receiving financial aid either from the state or Federal government, depending upon the community to carry its own load. At the present this means that over seventy-six per cent of the people of West Virginia are receiving the benefits of some form of full-time health service.

A few of the remaining counties are financially able to support a full-time health unit but most of them will have to be combined into districts in order to extend full-time health service to the people in these areas. Just how soon this service can be extended to all the people in the state will depend upon a great many factors but mainly upon the people themselves, for regardless of the generally conceded benefits of this type of service, it must be borne in mind that every public health department is an integral part of the community and state government and can only move ahead as fast as public opinion will permit.

*Jackson County included but not cooperating.
*Upshur County included but not cooperating.
*District No. 5 not completely staffed at the present time.

LIST OF MEMBERS

On page 46 of this issue of the JOURNAL appears a list of all active and honorary members of the West Virginia State Medical Association.

Please read this list carefully, check your name and address, and if any errors are found, notify the office of the secretary, Charleston.

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held on the evening of December 9, 1937 at the Huntington State Hospital, Huntington, West Virginia.

Dr. C. T. Taylor, superintendent of the State Hospital, invited the members of the Cabell County Medical Society and several out-of-town guests to a buffet dinner at six o'clock p. m. and to an inspection of the hospital between 2:30 and 4 o'clock. A clinic on "Treatment of Dementia Praecox" was held at five o'clock.

Immediately following dinner, Dr. John H. Skavlem of Cincinnati, Ohio, lectured on "Non-Tubercular Lesions of the Chest."

CHAUNCEY B. WRIGHT, *Secretary.*

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society met at Buckhannon, West Virginia, on November 17, 1937. The meeting was well attended.

Dr. G. G. Irwin of Charleston was the principle speaker. His subject was "Medical Urology and the Uses of Sulfanilamide." The address was of much interest to the society.

The following officers were elected during the business session for 1938:

President, Dr. Everett Walker, Adrian; vice president, Dr. E. S. Brown, Summersville; secretary-treasurer, Dr. A. B. Bowyer, Buckhannon.

A. B. BOWYER, *Secretary.*

FAYETTE COUNTY

The regular monthly meeting of the Fayette Society was held in the courthouse at Fayetteville, December 7, 1937. President Harold Jones presided.

The scientific program was presented by Dr. Charles Watkins, director of the Fayette County Health Department. His subject was "Public Health Work in Fayette County," which included a detailed account of nursing service, prenatal clinics, preschool clinics and venereal clinics.

The business session was devoted to election of officers for 1938. The following were chosen to fill the offices of the society.

President, Dr. F. S. Harkleroad, Harvey; first vice president, Dr. Max Raine, Fayetteville; second vice president, Dr. A. E. Bays, Carbondale; secretary-treasurer, Dr. Gilbert Daniel, Alloy.

GILBERT DANIEL, *Secretary.*

GREENBRIER VALLEY

The December meeting of the Greenbrier Valley Medical Society was held at the Greenbrier Hotel, White Sulphur Springs, on the evening of the fifteenth.

Dr. G. E. Gwinn of Pinecrest Sanitarium, Beckley, was the speaker of the evening. He gave a very interesting and instructive talk on tuberculosis.

During the business session the following were elected officers of the society for 1938:

President: Dr. H. D. Gunning, Ronceverte; vice president, Dr. Guy Hinsdale, White Sulphur Springs; secretary-treasurer, Dr. R. E. Baer, White Sulphur Springs.

A. G. LANHAM, *Secretary.*

HARRISON COUNTY

The regular monthly meeting of the Harrison County Medical Society was held at the Stonewall Jackson Hotel, Thursday evening, December 2, 1937, at six o'clock.

The meeting was devoted to a business session and election of officers. The following men were chosen to serve the society during 1938:

President, Dr. E. F. Wehner; vice president, Dr. O. W. Ladwig; treasurer, Dr. George F. Evans; secretary, Dr. James G. Ralston; delegates to state meeting, Dr. C. O. Post, Dr. E. B. Wright, Dr. F. V. Langfitt; alternates, Dr. I. C. Cole, Dr. H. H. Esker, Dr. G. F. Evans.

JAMES G. RALSTON, *Secretary.*

KANAWHA COUNTY

Dr. B. H. Swint was elected president of the Kanawha Medical Society at the annual meeting held at the Daniel Boone Hotel on Tuesday evening, December 14. He succeeds Dr. E. O. Vaughan who served during the past year.

Other officers elected at the December 14 meeting were Dr. Martin L. Bonar, vice president; Dr. McLeod Gillies, censor, and Dr. A. Spates Brady, Jr., secretary-treasurer.

As this was the annual business meeting of the society, no scientific program was scheduled. The next meeting of the society will be a dinner and dance in honor of the dotcors' wives to be held in January.

CLAUDE B. SMITH, *Secretary.*

LEWIS COUNTY

During the December meeting of the Lewis County Medical Society the following officers were elected for the coming year:

President, Dr. M. D. Cure, Weston; vice president, Dr. G. C. Corder, Jane Lew; secretary, Dr. Robert O. Pletcher, Jane Lew; delegate, Dr. E. A. Trinkle, Weston; alternate, Dr. R. M. Fisher, Weston.

Following the scientific program adjournment was called until January, 1938.

THERESA O. SNAITH, *Secretary*.

LOGAN COUNTY

The annual dinner of the Logan County Medical Society was held in the Aracoma Hotel, Logan, December 9, 1937. This was followed by the election of officers for 1938. The following doctors were chosen to fill the offices of the Logan society during the coming year:

President, Dr. D. T. Moore, Stirrat; vice president, Dr. J. W. Lyons, Holden; secretary-treasurer, Dr. J. L. Patterson, Holden; board of censors, Dr. V. A. Deason, Logan.

Following the Secretary's Report the retiring president, Dr. E. H. Starcher, made his farewell address. Dr. S. B. Lawson, honorary member of the Logan Society, entertained the gathering with a very amusing address entitled "The Long, Long Ago—In the Horse and Buggy Days."

Twenty-two members and guests attended.

J. LESTER PATTERSON, *Secretary*.

MARSHALL COUNTY

On December 14, 1937 at 2:00 p. m. the monthly meeting of the Marshall County Medical Society was held in the Elks' Club, Moundsville. The annual election of officers was as follows:

President, Dr. L. H. McCuskey, Moundsville; vice president, Dr. Homer A. Parker, McMechen; secretary-treasurer, Dr. J. A. Striebich, Moundsville; board of censors, Dr. R. B. Grimm, Cameron.

The program was presented by Dr. W. C. D. McCuskey of Wheeling. His subject was "The Prostate Gland." The address was illustrated by wax models.

J. A. STRIEBICH, *Secretary*.

MERCER COUNTY

The Mercer County Medical Society held its annual banquet and election of officers the evening of December 17, 1937 in the West Virginian Hotel, Bluefield. A good attendance marked the occasion.

During the business session Dr. H. G. Steele read the treasurer's report which showed an increase in funds over last year.

The following officers were elected for 1938:

President, Dr. E. W. Horton, Bluefield; vice president, Dr. Gordon Todd, Princeton; secretary, Dr. O. G. King, Bluefield; treasurer, Dr. H. G. Steele, Bluefield; board of censors, Dr. Ben Bird, Princeton; Dr. John Bird, Rock; Dr. R. R. Stuart, Bluefield.

O. G. KING, *Secretary*.

MONONGALIA SOCIETY

A meeting of the Monongalia County Medical Society was held Tuesday, December 7, 1937 at 8 o'clock p. m., in Commencement Hall, West Virginia University, Morgantown, West Virginia. Dr. C. B. Pride, president, presided. The public was invited to attend.

The scientific program was presented by Dr. Dean Lewis, Professor of Surgery, Johns Hopkins Medical School, Baltimore. Dr. Lewis' subject was "Recent Advances in Surgery of the Glands of Internal Secretion." Needless to say, the presentation received an enthusiastic response from the audience, followed by a general discussion.

G. R. MAXWELL, *Secretary*.

OHIO COUNTY

The Medical Society of Ohio County met in the solarium of the Ohio Valley General Hospital on Friday, December 17, 1937 at 8:30 p. m. Dr. W. M. Sheppe, president, presided.

The scientific session was presented by Dr. William Middleton, Professor of Medicine, University of Wisconsin Medical School, Madison, Wisconsin. His subject was "Postoperative Pulmonary Complications." The discussion which followed Dr. Middleton's presentation was led by Doctors D. A. MacGregor, John W. Gilmore and R. J. Reed, Jr.

W. C. D. MCCUSKEY, *Secretary*.

PARKERSBURG ACADEMY

The December meeting of the Parkersburg Academy of Medicine was held on the 2nd, at 8:30 o'clock at the Camden-Clark Hospital, Parkersburg. President A. R. Sidell presided. The entire meeting was devoted to a business session during which many matters of importance to the Academy were voted upon.

Election of officers was as follows:

President, Dr. R. S. Widmeyer; vice president, Dr. E. T. Goff; secretary-treasurer, Dr. James L. Wade; board of directors, Dr. J. M. DePue, Dr. Paul C. Starkey, Dr. R. H. Boice, Dr. R. B. Miller, Dr. O. D. Barker.

A resolution in regard to the recent death of Dr. D. C. Casto, an honorary member of the Academy and the State Association was passed and adopted for inclusion in the minutes.

An address by retiring president, Dr. Sidell, particularly stressed the importance of attendance at the monthly meetings of the Academy. Adjournment followed.

BERLIN B. NICHOLSON, *Secretary*.

WYOMING COUNTY

The Wyoming County Medical Society met at the Wyoming Hotel, Mullens, West Virginia, December 15, 1937. Following a general discussion as to the policy of the county society the following officers were elected for the year 1938:

President, Dr. Walter Dearing, Mullens; vice president, Dr. R. C. Hatfield, Oceana; secretary-treasurer, Dr. Ward Wylie, Mullens; board of censors, Dr. J. F. Biggart, Mullens; Dr. J. O. Bailiff, Mullens; Dr. D. D. Wilkinson, Wyco.

WARD WYLIE, *Secretary*.

Obituaries

DR. D. C. CASTO

The demise of Doctor Donza Clarence Casto, Parkersburg physician, occurred October 24, 1937, at his home, following an extended illness. He was sixty years of age.

Dr. Casto had practiced medicine in Parkersburg for thirty-one years and had been in retirement the past year due to failing health. He was born at Rockport, Wood County, and was a life-long resident of the county.

He received his medical training at West Virginia University and Baltimore Medical College from which he was graduated in 1899. Dr. Casto was an honorary member of the Parkersburg Academy and the West Virginia State Medical Association and a member of the American Medical Association.

General News

COUNCIL MEETING

The Council of the West Virginia State Medical Association met in the Association Headquarters in the Public Library Building, Charleston, December 16, 1937 at 10:30 o'clock a. m. Those present were: Dr. W. S. Fulton, president; Dr. C. G. Morgan, Council chairman and Doctors R. J. Wilkinson, Huntington; W. G. Harper, Elkins; Fred E. Brammer, Dehue; B. S. Brake, Clarksburg; Ralph Hogshead, Montgomery; Phillip Johnson, Fairmont; B. C. John, Morgantown; Robert King Buford, Charleston; R. J. Reed, Jr., Wheeling; Welch England, James McClung, Richwood; T. M. Barber, treasurer, Charleston; R. H. Walker, member-at-large, Charleston; C. W. Waddell, president-elect, Fairmont; and Mr. Joe W. Savage, ex-officio secretary.

Minutes of the preceding meeting were approved as read.

Due to the noise of workmen outside, the meeting recessed to Room 305, Daniel Boone Hotel, Charleston.

The meeting was called to order at the Daniel Boone Hotel by Dr. Morgan at 11 o'clock a. m. The report of the secretary was read by Mr. Savage and approved on motion of Dr. Hogshead, seconded by Dr. Brammer.

The following reports of the District Councillors were received:

First District: Dr. Reed, Dr. Johnson.
Second District: Dr. John, Dr. Harper.
Third District: Dr. Brake.
Fourth District: Dr. Wilkinson.
Fifth District: Dr. Brammer.
Sixth District: Dr. Buford, Dr. Hogshead.

Under the head of unfinished business Dr. Walker asked for a report on the Gary plan of providing medical and hospital service for miners. In the absence of Dr. Shanklin, no report was available. It was understood that Dr. Shanklin would make his report at the July Council meeting.

On motion of Dr. Reed, duly seconded, the following members were elected to honorary membership in the Association: Dr. C. B. Williams, Philippi; Dr. F. L. Round, Holden.

On motion of Dr. Harper, duly seconded, the name of the Grant - Hardy - Hampshire - Mineral

Society was changed to the Potomac Valley Medical Society.

Dr. Claude B. Smith, Charleston, was elected for the three year term on the Association's Committee on Constitution and By-Laws.

Dr. Walker suggested that the above Committee be asked to study a proposed amendment to the Constitution so that county society delegates to the State Association could serve overlapping terms in order to forestall the possibility of a complete new set of delegates being elected each year.

After considerable discussion of the editorial policy of the WEST VIRGINIA MEDICAL JOURNAL, it was moved by Dr. Reed and seconded by Dr. Buford that the Publication Committee could accept and publish controversial material if, in the opinion of the Publication Committee, such material was worthy of publication.

Dr. Buford presented a request from the Kanawha Medical Society for financial assistance in prosecuting an injunction suit against Dr. W. B. Richardson, Kansas City osteopath, and Mrs. Katherine L. Bunch, his local representative. It was pointed out by Dr. Buford that Dr. Richardson's operatives were working in a number of different sections of the state and that if an injunction could be secured by the Kanawha Medical Society, it would effectively stop these operations throughout West Virginia. On motion of Dr. Brammer, seconded by Dr. Wilkinson, the Council moved to match the expenditure of the Kanawha Medical Society in the above case in an amount not to exceed $300.00.

The Council recessed at 12:20 o'clock for luncheon.

The Council reconvened at 1:45 p. m. and heard the report of Dr. Andrew E. Amick, representing the Association's Committee on Maternal and Child Welfare. Dr. Thomas Nale, representing the State Health Department was also present. Many questions were asked Dr. Amick and Dr. Nale relative to the postgraduate "Refresher Courses" of the past two summers, after which Dr. Reed moved that the Council endorse the postgraduate program of the Committee and that the Association take over and assume the responsibility and direction of the program. This motion was seconded by Dr. Walker and carried.

On motion of Dr. Reed, a rising vote of thanks was given to Dr. W. S. Fulton for his services as president of the Association.

On motion of Dr. Morgan a rising vote of thanks was given to Dr. R. H. Walker for his services as President of the Association, Council Chairman and Council Member-at-Large.

Dr. C. W. Waddell, president-elect, was recognized and talked briefly of his plans for the coming year.

There being no further business to come before the Council the meeting adjourned at 3:30 p. m.

JOE W. SAVAGE, *ex-officio Secretary.*

REPORT OF THE SECRETARY

(Joe W. Savage)

West Virginia State Medical Association
December 16, 1937

The Association activities have increased considerably over the past year. New committees have been created and new fields of enterprise have been opened. This report will not attempt to give a detailed account of all the activities engaged in by the Association during the past year, but it will touch briefly upon most of our major functions.

Our relations with the Department of Public Assistance are most cordial and cooperative. This is due in part to the fact that our President, Dr. Fulton, is a member of the Public Assistance Advisory Board. It is also due to the fact that we have a strong, aggressive Association Committee looking after our interests. For the general handling of ordinary medical relief, little need be said. I don't believe we have received a complaint from any member of the Association for more than six months. Our fee schedule, while unusually modest, is apparently satisfactory. The increase in mileage which we secured last spring has met with the most hearty approval. A considerable number of other states have adopted the essential features of our West Virginia medical relief set-up. Through the aid of Dr. Fulton, we brought about the appointment of a medical coordinator in the Public Assistance Department some months ago. The position was given to Dr. Donald L. Butterfield, who has been of the greatest assistance both to the Department and to our Association.

The one phase of Public Assistance that has caused us some trouble is our pioneer experiment in adult physical rehabilitation. At the Clarksburg meeting last May, you will recall that we received permission from the Council and House of Delegates to compile a list of surgeons qualified to do rehabilitation surgery. This accomplishment required more than two months hard work. Qualify-

ing questionnaires were sent to every Association member. Several hundred applications were returned. The ability of many who applied was unquestioned, but there was a large number of borderline cases that required extensive correspondence upon the part of our Association Advisory Committee. The list was completed about the middle of September, and on October first, assignments were made in alphabetical rotation to those on the qualifying list.

Here the Committee struck its first snag. While the rotation assignment plan treated all doctors equally, it did not recognize the right of free choice of physician. Dozens of complaints came in from doctors and patients. After due consideration the Committee revised its assignment plan so that rehabilitation patients who expressed a preference for a particular surgeon would be assigned to that surgeon, providing the surgeon was on the qualified list. Where no preference existed, or when the preferred doctor was not on the qualified list, cases were still assigned in alphabetical rotation in each community. This revision eliminated the chief cause of complaint and little difficulty has been experienced since the revision was adopted. Most of the complaints now reaching the Committee are from doctors who desire to appeal the action of the committee in not placing them on the qualified list. All of these appeals are handled as individual cases, each appeal is thoroughly investigated and studied, and in some instances additional evidence of surgical ability has resulted in the placing of additional names on the qualified list.

Many of you no doubt read the article in the November *Readers' Digest* relative to our rehabilitation program. As a result of the *Digest* article, some fifteen or twenty other states are now working on rehabilitation projects and are swamping our office with requests for additional data and information. The latest request came recently from the government of the Dominion of Canada.

The difficulties which we have encountered must be expected in any pioneer movement. In spite of these difficulties, I feel that our rehabilitation work is perhaps the most important medico-sociological activity we have ever engaged in. This plan has already restored several hundred former breadwinners to gainful employment and to their family physicians as paying patients.

The Association's new Syphilis Committee, composed of Dr. W. M. Sheppe, chairman, Dr. Ray M. Bobbitt and Dr. A. H. Stevens, met at Parkersburg in September with Dr. McClue and Dr. Scott of the State Health Department. Plans for more adequate means of syphilis control in West Virginia were inaugurated at that time and all present at this meeting were most enthusiastic over the prospects. Dr. Sheppe has since been working on the problem with the State Health Department, close cooperation has been promised by both groups, and an excellent report of accomplishment will no doubt be made by this Committee at the White Sulphur meeting next July.

The legislative results of the 1937 session were reported at the Clarksburg meeting. Since that time, however, the new compulsory immunization law has gone into effect. With the opening of school last September, the question immediately arose as to whether or not these immunizations should be done by the private physicians or by the health officials. In many of the counties, the local county societies worked in close harmony with health officials and joint immunization programs were successfully carried out. In many instances, fixed office hours were established during which time immunizations were given at reduced rates by the private doctors. Through efficient advertising and propaganda issued by the health officials, most of the immunizations were done by the private doctors. However, in other counties, no attempt was made to reach an understanding with local health officials or with county medical societies. Where this lack of cooperation existed, most of the immunizations were done by school and health doctors. Some ill feeling resulted. The some conditions will exist again next year, when a new group of children reach school age. It is our observation and experience that such problems can be amicably worked out with little or no difficulty in each county through mutual understandings between county medical society and county health officials. Where no attempt is made to reach such understandings and agreements, the Association can do little to help matters along. We hope that each Councillor will endeavor to sell this idea of cooperation and mutual understanding to his own district during the next nine months. It will be presented and discussed in full at the Secretary's Conference next month.

The relationship of the Association with the State Compensation Department has continued on a most cordial basis. Dr. G. C. Schoolfield assumed his new duties as Chief Medical Examiner last August first. We have had no complaints and few

claims to adjust since that time. We have met routinely with Dr. Schoolfield and Commissioner Matthews on a few occasions and all disputed claims have been amicably adjusted.

Hospital insurance plans have grown by leaps and bounds in West Virginia during the past year. During the past six months, new plans have been established in Clarksburg, Weston, Parkersburg and Huntington. When these plans are set up to meet local conditions, and when they meet the specifications of and the approval of the medical profession, they no doubt serve a useful purpose. But each Councillor and each county society should be on guard to see that these plans do not infringe upon the practice of medicine in any way. Within the past month a hospital insurance plan presented at Wheeling was turned down flatly because its proposed benefits included the professional services of röentgenologists, pathologists and anesthetists.

Much publicity has attended the recent pronouncement of the self-appointed "Committee of 430" physicians who seek to bring about a change in our present system of medical practice. This committee is promoting a plan that was presented to and rejected by the American Medical Association House of Delegates at Atlantic City last spring. This Committee has apparently endeavored to give the impression that a rift had been created in the ranks of the American Medical Association. No rift has occurred in the ranks of organized medicine and no rift is anticipated. West Virginia, incidentally, is one of the very few states that provided no signatures to the list of 430 distinguished men.

Reviewing the more tangible assets of the Association, we will deal briefly with membership and finance. At the December Council meeting last year we had 1141 members. Today we have 1184. We have taken in 123 new members during the past year. Approximately 100 former members have been lost through deaths and removals from the state. We have 16 societies with 100 per cent paid up membership and 37 delinquent members.

Our total Association assets are now approximately $29,000, the increase over the past year being $2,414.63. THE WEST VIRGINIA MEDICAL JOURNAL has had the most profitable year in its history with an annual net profit of $2,316.10. Our previous high mark was in 1929 when we had a profit of slightly over two thousand dollars. This profit was made exclusively on advertising; no part of the Association dues being used for subscription costs.

TWENTY-FIVE YEARS AGO

(Taken from the January Journal of 1912)

From the Editorials:

"A joint meeting of committees from the State Board of Health and the State Medical Association was held at Clarksburg on Monday, December 30th 1912, for the purpose of forming legislation in the interests of public health to be presented at the coming session of the state legislature. Those composing the committee were Doctors Halterman, Golden, Barbee and Wingerter, of the State Board, and Doctors Henry, Hupp, Simpson and Johnson of the State Association.

Doctors Robins and McMillen, of Charleston, were added to the Committee at the Clarksburg meeting. The Joint Committee completed a permanent organization by electing as chairman, Dr. Hupp, with Dr. Simpson as secretary. The entire day was spent in fixing the general scope and in preparing the details of the measure to be urged.

. . . . . .

The committees are already actively at work, and hope for the hearty cooperation of the entire profession of the state in urging that more means be devoted to the advancement of the public health than has heretofore been available. At present West Virginia, with a much larger population than Wyoming, is contending with that state for the doubtful honor of being last on the list of states in the Union, judged by the amount appropriated to the State Board of Health for public health purposes. While other states appropriate sums ranging from thirty thousand dollars up to a million and three-quarters, West Virginia, like Wyoming, limits the amount to a paltry fifteen hundred, which amount is barely enough to pay the actual traveling expenses of the state's medical examining board."—C.A.W.

STATE NEWS

Doctors Atlee Mairs and J. W. Moore, who have recently attended the American Surgical Congress in New York, are again at home and at work.

Dr. W. A. McMillen of Charleston has recently suffered an acute attack of tonsillitis.

Dr. W. B. Robertson, late of Dorfee, has located at Quincy, Kanawha County.

Dr. M. I. Mendeloff of Baltimore has opened an office in Charleston.

Dr. A. L. Peters has removed from Grant Town to Fairmont.

Dr. J. W. Lyons, who has been engaged in

practice in Huntington, has removed to Holden, W. Va., where he takes charge of an eighteen bed hospital for the Island Creek Coal Company.

Dr. A. U. Tieche, who came to Huntington to take the place of resident physician at the C. & O. Hospital, has gone to Welch.

Married—Dr. Harry Glenville Tonkin of Martinsburg to Miss Lillian Licklider at Martinsburg on November 28th.

Born—To Dr. and Mrs. C. B. Preston of Burnwell, a daughter. To Dr. and Mrs. W. S. Robertson of Charleston, a daughter.

SOCIETY PROCEEDINGS

Officers elected at the Cabell County Medical Society meeting on December 12, were as follows:

President, Dr. W. E. Neal, Huntington; vice president, Dr. H. C. Solter, Huntington; treasurer, Dr. I. R. LeSage, Huntington (reelected); secretary, Dr. J. R. Bloss, Huntington (reelected); censor, Dr. C. C. Hogg, Huntington.

Officers elected for 1913 at the December 4 meeting of the Eastern Panhandle Society meeting were as follows:

President, Dr. T. K. Oates, Martinsburg; vice president, Dr. Nelson Osburn, Martinsburg; secretary and treasurer, A. Bruce Eagle, Martinsburg.

Officers for 1913 elected at the December 1912 meeting of the Fayette County Medical Society were:

President, Dr. T. H. Elliot, Gauley Bridge; vice president, Dr. B. W. Eakin, Carlisle; vice president, Dr. C. W. Lemon, Claremont; secretary-treasurer, Dr. H. C. Skaggs, Kaymoor.

Marion County Medical Society held its December meeting on the 27th and elected the following officers for 1913:

President, Dr. C. W. Waddell, Fairmont; vice president, Dr. C. M. Ramage, Fairmont; secretary, Dr. H. R. Johnson, Fairmont; treasurer, Dr. W. H. Sands, Fairmont; board of censors, Dr. L. N. Yost, Fairmont; delegates to state meeting, Dr. C. O. Henry, Fairmont; Dr. C. L. Holland, Fairmont.

McDowell County Society met on December 11, 1912 and elected the following officers for the coming year:

President, Dr. J. Howard Anderson, Marytown; vice president, Dr. W. E. Cook, Algoma; vice president, Dr. C. F. Hicks, Miner's Hospital No. 1; secretary, Dr. S. D. Hatfield, Iaeger; treasurer, Dr. W. L. Johnston, McDowell; censor, Dr. E. F. Peters, Maybeury.

ACTIVE AND HONORARY MEMBERSHIP

WEST VIRGINIA STATE MEDICAL ASSOCIATION

(Editor's Note—Below will be found the names of all active and honorary members in good standing in their respective county societies. The asterik (*) appearing before a name indicates honorary membership. From this type will be published the annual Association directory of members. Will each member please check his own name and address and notify the Journal at once if any error is made.

BARBOUR-RANDOLPH-TUCKER

H. H. Bolton ..... Pierce
J. M. Brand ..... Coketon
A. P. Butt, Jr. ..... Elkins
R. J. Condry ..... Elkins
A. M. Fredlock ..... Elkins
B. I. Golden ..... Elkins
T. M. Goodwin ..... Elkins
P. L. Gray ..... Elkins
C. H. Hall ..... Elkins
W. G. Harper ..... Elkins
F. S. Holsberry ..... Parsons
L. S. King ..... Philippi
B. L. Liggett ..... Mill Creek
L. C. McGee ..... Elkins
G. H. Michael ..... Belington
J. H. Miller ..... New York City
J. L. Miller ..... Thomas
S. G. Moore ..... Elkins
Frank Murphy ..... Galloway
E. E. Myers ..... Philippi
H. C. Myers ..... Philippi
K. J. Myers ..... Philippi
S. J. Skar ..... Davis
W. S. Smith ..... Philippi
C. G. Stroud ..... Brownton
S. Weisman ..... Parsons
W. E. Whiteside ..... Parsons
J. R. Woodford ..... Philippi
T. L. Woodford ..... Junior
*J. L. Bosworth ..... Mill Creek
*E. M. Hamilton ..... Belington
*W. W. Kerr ..... Volga
*H. K. Owens ..... Elkins
*W. L. Miller ..... Bemis
*C. B. Williams ..... Philippi
*A. H. Woodford ..... Belington

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D. F. Pauley ..... Jeffrey
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F. L. Matson ..... Wellsburg
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Ralph McGraw ..... Follansbee
J. P. McMullen ..... Wellsburg
C. R. Megahan ..... Follansbee
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O. B. Biern ..... Huntington
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J. R. Bloss ..... Huntington
R. M. Bobbitt ..... Huntington
W. D. Bourn ..... Barboursville
J. J. Brandabur ..... Huntington
B. F. Brown ..... Huntington
F. A. Brown ..... Huntington
J. R. Brown ..... Huntington
L. C. Brown ..... Huntington
W. F. Bruns ..... Ceredo
V. L. Chambers ..... Huntington

Leo Christian.....Huntington
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D. J. Cronin.....Huntington
R. H. Curry.....Barboursville
W. F. Daniels.....Huntington
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J. W. Ferguson.....Kenova
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C. P. S. Ford.....Huntington
J. C. Ford.....Huntington
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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
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ASSOCIATE EDITORS:
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Vol. XXXIV February, 1938 No. 2

MODERN ANESTHESIA *

By BOYD F. BROWN, M. D.
Huntington, W. Va.

MODERN surgery owes much of its success to modern anesthesia, a great deal more than one not interested in either of these branches of medicine is prone to award it. The two sciences are interdependent. Although anesthesia was well out of its infancy at the turn of the century, the past twenty years has given us our greatest advancement in this field of medicine.

This fact is due not only to the introduction of new agents and new methods, but also to a clearer understanding of the physiological action of the different anesthetics in the human body.

The actual giving of an anesthetic is only part of a complex problem. Other important factors frequently not recognized are: (1) The importance of proper preparation of the patient for the anesthetic and for surgery. (2) Preliminary medication. (3) The choice of the anesthetic agent. (4) The postoperative care. Each step is very important, not only to the successful anesthetization, but to the surgeon for smoothness in his work and to the patient for his safety. In preparing a patient for surgery, it is often life saving to get an accurate estimation of both the anesthetic and surgical risk. Except for the control of hemorrhage and in cases of traumatic surgery, it is rarely justifiable to operate without a very close study of the patient. This does not have to be time consuming or elaborate. By getting an idea as to the general condition, surgery may be definitely modified or postponed until a more favorable time. A routine preoperative examination can generally be very brief. The observer should note by questioning and inspection the following points in particular:

The Age of the Patient: The elderly as well as the very young do not stand heavy preliminary narcosis.

The State of Nutrition: The debilitated, the markedly emaciated, or the "marasmic looking" patient is always a more serious risk.

Pulmonary and Cardiac Symptoms: A history of precordial pain or dyspnea on exertion, orthopnea, recent colds, or chronic

*Read before the Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, W. Va., Nov. 9, 1937.

cough, should warrant closer study. A blood pressure determination is essential as is an urinalysis and a hemoglobin estimation.

From this brief examination, the anesthetist can decide the advisability of immediate surgery, the type of anesthesia, or whether the patient should have preliminary medical treatment before operation.

TYPES OF ANESTHESIA

A few of the conditions which may be encountered with suggestions as safeguards follow: The diabetic when properly controlled with insulin and carbohydrates, can be made a good surgical risk. Ether is the poorest anesthetic for victims of this disease.

The anemic should be built up to a hemoglobin of at least 70 per cent before operation. Transfusions should be used if time is essential. The red blood cells are the oxygen carriers of the body, regardless of the type of anesthesia.

In prolonged vomiting and intestinal obstruction the patients are made much better risks by giving nasal drainage, hypertonic saline, and glucose before surgery.

In liver damage an abundance of glucose with calcium gluconate is very advantageous. Novocaine and the gaseous anesthetics are to be chosen.

As to the cardiovascular system, it is a saying at our hospital that the known cardiac is always a good risk. Every effort is made to see that these patients are in the best possible condition before operation. Surgery and anesthesia are used cautiously. It is usually the patient who presents no definite physical findings or clinical symptoms of heart disease that dies postoperatively.

When pulmonary diseases are considered, acute upper respiratory conditions should be postponed whenever possible. No irritating anesthesia should be used. Tuberculosis, empyema, or bronchiectasis should be given the least depressing type of anesthesia possible. Novocaine locally, or cyclopropane is very suitable in a large number of these cases especially when given with an abundance of oxygen.

The success of any anesthetic depends upon the proper preliminary medication. There are several important reasons why this is true. The mental attitude of the patient is changed. Fear gives way to calmness, and a smoother anesthetic is possible. The metabolism of the patient is lowered and a much smaller quantity of the anesthetic agent will suffice.

In choosing the proper drugs it is important to individualize each case. The more quickly acting barbiturates are used as hypnotics. Nembutal and ortal sodium seem to be the most popular at present. Morphine, with hyoscine, is used, not only because of its sedative action but because it lowers the basal metabolism. Hyoscine is also a definite respiratory stimulant.

The use of atropine and ephedrine is questionable. Atropine dries up the secretions and increases metabolism. The secretion from the bronchial tree is a protective mechanism against irritants and less harm is done by suction or wiping out any excess secretion than having an abnormally dry pulmonary tree. The effects of ephedrine are variable. In certain cases it has a definitely deleterious affect on the cardiovascular system and its systemic action is often very similar to surgical shock.

THE USE OF DRUGS

The dosage of various drugs used in preliminary medication is in each case a rule unto itself. Caution must be used in the aged. Generally speaking, the young and robust require heavier preliminary medication. It is important that sufficient time elapse between the giving of the drug and surgery, for its maximum effects to manifest itself. The barbiturates or paraldehyde are given two hours prior to operation while with morphine and hyoscine one hour usually suffices. This is done so that if any adverse effects are present they will wear off before the anesthesia is started. The beneficial effects take this long to be noted.

There is probably no more debated subject in medicine than the choice of anesthesia. The skill and training of the anesthetist is a major factor in choosing the agent to be used. For

the nurse and occasional anesthetist, ether, or nitrous exide-ether are by far the safest anesthetics. This is no excuse, however, for not taking advantage of the recent major advances in anesthesia. Regardless of the agent used, certain factors must be kept in mind for the safety of the patient. A minimal amount of the drug commensurate with the desired effect should always be used. The human body cannot live without adequate oxygen. The accumulation of excess CO^2 is very detrimental to the patient. These factors can be corrected by an open airway, addition of oxygen when needed, and the use of the CO^2 absorption technique. It has been proven that even ether and chloroform are much less toxic to the liver if given with excess oxygen.*

Of the inhalation anesthetics, the older ones will not be discussed in detail. Chloroform and ethyl chloride are definitely dangerous drugs as given at present. Nitrous oxide is the weakest of the anesthetics when used without ether. However, it can be used when cauterization is necessary. Its greatest drawback is the small amount of oxygen that can be used and the consequent anoxemia.

USE OF ETHYLENE

Ethylene is more powerful in action than nitrous oxide. The amount of oxygen used with this drug is slightly greater. However, it is frequently necessary to use ether in conjunction with the ethylene which is very inflammable.

In 1933, Waters reported his clinical experience with cyclopropane. This drug is proving to be one of our most successful anesthetic agents. With the proper preliminary sedation, cyclopropane is as effective as ether and chloroform. With an experience of over three years, in all types of surgery, ether has been added only one time for further relaxation. This drug is very potent and a meticulous technique must be observed. When given in too high a concentration it is a definite respiratory depressant. Its effect on the heart is minimal when given correctly. From five to twenty-three per cent concentration is sufficient for thorough relaxation. The diluent is pure oxygen. The carbon dioxide absorption method must be used. When using this method the cost of anesthesia is from seventy-five cents to one dollar and fifteen cents per hour. On the shorter anesthetics it is no more expensive than ether.

VALUE OF CYCLOPROPANE

The advantages of cyclopropane are the quickness, ease, and smoothness to the patient during induction, the proper oxygenation throughout the operation and the smooth recovery. The respiration is very much decreased in extent and when used intratracheally an ideal type of anesthesia can be given for upper abdominal and chest surgery. It is particularly useful in any type patient that requires a liberal use of oxygen.

Vinyl ether or vinethene has recently been introduced as an anesthetic agent. This is a highly volatile liquid, with great anesthetic properties. When given by the open drop method its expense makes it prohibitive for long anesthesia. It is also very difficult to keep a patient on an even plane with this drug on account of the rapidity which it is volatilized or eliminated from the body. It is ideal for very short operations, as extraction of teeth, paracentesis of an ear drum, or other short cases, and recovery is rapid.

Of the intravenous anesthetics, only two will be mentioned, evipal and pentothal sodium. These drugs are both barbituric acid derivatives, and are short acting. Pentothal contains a sulphur radical which seems to give it different properties than evipal. Patients to whom evipal is given frequently are very rigid and have slight convulsions. Pentothal gives much better relaxation and is very profound in its action. This drug is ideal for short anesthetics and has been frequently used for abdominal surgery over longer periods of time. The intravenous anesthetics mentioned are respiratory depressants, are contraindicated in liver damage and should always be given by broken doses with easy access to oxygen. Their after effects are generally very pleasing to the patient.

*Rardin, I. S.: Personal Communication.

The patient to whom pentothal is given should not be allowed to arise for at least three or four hours. There is a marked unsteadiness of gait for this period of time after the time the drug has been given.

SPINAL ANESTHESIA

The use of spinal anesthesia has probably been one of the most discussed subjects in medicine during the past ten years. Certain men are absolutely opposed to the use of this procedure. Other men, equally as strong state that it is a most perfect type of anesthesia. There are many factors which make both statements correct. The skill of the anesthetist, the type of drug chosen, the surgery to be performed, and the condition of the patient are all very important. A definite technique must be worked out by the operator and rigidly adhered to. All elements of safety must be given to the patient. It has been proven that there is a greater incidence of accidents with this type of anesthesia with the anesthetist who is just learning the technique. There are several drugs used for spinal anesthesia and different techniques used. A few are, pantocaine, spinocaine, cocaine, nupercaine, and metycaine. Undoubtedly, procaine or novocaine have the lowest toxicity. Our series of spinal anesthetics consist of over 6,000 cases. Using novocaine, there has been no immediate fatality in this series of cases.

Pantocaine was used in 150 cases with two deaths. A postmortem examination was done on each of these cases. One showed death due to a sensitiveness to the drug used. Throughout every organ of the body, there occurred petechial hemorrhages from the small capillaries and arterioles. Over the skin there were large petechial hemorrhages covering the whole body. Case two, was that of an obese, elderly lady, who had definite myocardial damage.

We have been using spinal anesthesia for the past two years in 75 per cent of our cases. During this time, we have reached some definite conclusions. We feel that novocaine is the drug of choice and the dose should never exceed 100 mgm. We almost routinely use glucose solution intravenously to help offset the fall in blood pressure. With glucose the incidence of vomiting and a fall of over 20 mm. has been reduced from 85 per cent to 20 per cent, this regardless of the type of operation or the amounts of novocaine used up to 100 mgm. Rather than use a larger dose of novocaine, we have found cyclopropane a very efficient supplemental drug in case that the small amount used is insufficient. We have found that the great majority of surgical procedures can be accomplished with this small dosage. It is felt as though our postoperative pulmonary complications are very markedly lessened by this procedure. The reports from the various clinics and from anesthetists using spinal anesthesia show as great an incidence of pulmonary complications following spinal as in inhalation anesthesia, and in some instances even greater. We feel that this is definitely due to the large amount of the drug used. Regardless of the type of anesthesia, it will be noticed that pulmonary complications will ensue in a larger majority of cases in which there is too much anesthesia used, or in which the operation lasts over 60 minutes. Frequently, where possible, we have divided our operations into two stage procedures where we feel that the resistance of the patient is lowered by using too much time at one operation.

SPINAL PUNCTURE

In giving a spinal anesthesia, the following procedure is used: For gall-bladder, stomach, or kidney operation, the space between the twelfth thoracic and first lumbar vertebra is used. At this level, 100 mgm. of novocaine is made up in two and one-half c.c. of spinal fluid and injected slowly through this interspace. After five minutes, the head of the table can be placed in mild Trendelenburg. For lower abdominal operations, the amount of novocaine is dissolved in four c.c. of spinal fluid and injected between the third and fourth interspaces. For transurethral work and operations on the lower extremities, from 50 to 70 mgm. is used at the fourth

interspace. We have found that 60 to 70 mgm. is ideal for transurethral resection. At least one hour of perfect anesthesia is received in 95 per cent of the cases.

In reviewing 480 cases from our department of genitourinary diseases, in which urethral resection was performed under spinal anesthesia, we found two deaths from postoperative pulmonary complications. One of these was a pneumonia, and the other an atelectasis. There were four cardiovascular deaths from 24 hours to two weeks after operation. The total mortality in this series was three per cent. The great majority of these patients were well in the sixth decade of life or beyond. I do not believe that it would be possible to handle this class of patients as sucessfully with any other type of anesthesia.

Our contraindications for spinal anesthesia are: The markedly obese, extreme hypertension, the uncooperative, or people who do not wish spinal anesthesia, the debilitated or anoxemia of the heart or chest.

LOCAL ANESTHESIA

There is another use for such drugs as novocaine, nupercaine, and pantocaine where it is not deemed advisable to use a spinal anesthetic. This is the so-called local anesthesia and is used in several different manners. The use of these drugs as local anesthetics differs with the technique with which they are used. For some surgical procedures by simply infiltrating a one per cent or one-half per cent solution of novocaine in the tissues to be operated upon gives fairly good anesthesia. Much better anesthesia will result by the field block. Here the nerve supply is anesthetized with the drug used well outside of the field of surgery. When efficiently carried out, this method is very satisfactory. Another method is known as regional anesthesia. Here the large nerve trunks are infiltrated generally close to their exit from the neural canal or before they break up into their final branches. Examples of this are, the cervical plexus block, the caudal and transsacral block, or the blocking of various other nerves or plexuses of nerves close into their trunk formation. This type of anesthesia is very successful. At times, it can be used on patients that are too ill to consider any other type of anesthesia. To be successfully carried out the anesthetist must be skilled in its use for practical application. I believe that this type anesthesia should be used a great deal more than it is.

The use of rectal anesthesia can be recommended only for basal anesthesia. Doses sufficiently large to produce surgical relaxation are too depressing to the patient for safety. To give only basal anesthesia in small doses, is ideal in certain types of patients, especially the markedly apprehensive seen so frequently in thyrotoxicosis.

I would like to stress that the postoperative care of all surgical patients is very important. The patient should be well oxygenated during the close of the anesthetic. He should be made warn and carefully watched until he has reacted from the anesthetic. With the least sign of cyanosis or shock, oxygen should be administered and other treatment instituted. It is essential to see that the patient has an open airway and that all mucus and vomitus is cleared out of the mouth and pharynx. Explicit instructions should be given to the nurse that the patient be turned, and be made to cough, and clear out the lungs at frequent intervals for the first two or three days after the operation. We have had only six serious postoperative pulmonary complications in the last 3800 anesthetics given.

CONCLUSIONS

In conclusion, I would like to stress the importance of viewing the patient and procedure to be instituted as a whole. The actual giving of an anesthetic is of no more importance than being able to choose the proper type of treatment before and after surgery and picking the type of anesthesia which is most suitable to the safety of the patient. One must not be satisfied with a narrow viewpoint as to anesthesia, but should skillfully carry out all aids known, both for the convenience of the surgeon and for the greater safety of the subject who trusts his life to the skill of the anesthetist.

ULCERS DUE TO VARICOSE VEINS AND LYMPHATIC BLOCKAGE*

By HUGH H. TROUT, M. D.
Roanoke, Va.

BEFORE attempting to describe my conception of the principles underlying the successful treatment in cases of ulcers due to varicose veins and lymphatic blockage, it is imperative to define more specifically the exact condition to be considered. Perhaps, this can be done best by briefly mentioning the conditions to which I do not refer. It is not the small ulcer frequently found associated with varicose veins that has existed for only a short time, though such ulcers usually require more extensive operations than those commonly employed. It is certainly not the "trophic" ulcer, though sometimes, in these cases, a differential diagnosis is difficult and uncertain. It is not the syphilitic ulcer, although it is well to remember that patients with "leg ulcers" can have positive reactions to the Wassermann and Kahn tests and yet the ulcers apparently not be connected with syphilis. In such cases, of course, no operation should be done until after syphilitic treatment has been completed.

UNSUCCESSFUL INJECTIONS

The type of ulcer to which I do refer is that one which all physicians remember dressing from month to month and often from year to year, without any marked success in the healing or diminution in the odor. Most of the modifications of Unna's pastes and adhesive straps have been used; some of the varicose veins have been injected and the ulcer removed with an insufficient amount of tissue under and around the same, but in spite of cherishing the hopes of an ultimate cure, most of these patients have returned only slightly, if at all, improved.

This state of affairs is best illustrated by the fact that in the forty-two cases on which this report is largely based, only two patients have not had previous operations. One patient in the series had nineteen operations, including all different kinds of skin grafts.

During recent years all of the cases have had some form of injection treatment. It is rather interesting to recall that over 40 years ago Sicard and other French surgeons abandoned the various intravenous injections, for they felt that such treatments were followed by an increased percentage of intractable ulcers. It might be wise to give serious consideration to such a possibility at the present time when injections are apparently so successful and so satisfactory.

CARE OF PATIENTS

About twenty-five years ago, one fact became clear to me concerning this class of patients; namely, that the visiting surgeons, the resident surgeon, and often the internes did not want to be "bothered" with these disagreeable dressings, and, therefore that the patients were not receiving the best possible consideration from the men in whom rested their best hope of relief.

In August, 1917, one of these unfortunate patients, who had had three separate and unsuccessful operations performed by surgeons in various parts of America, came to me insisting on an amputation for relief from the pain and the odor. After much persuasion she consented to allow me to try the principle, which I believe is essential to successful treatment in this condition. As the patient has remained well for eighteen years, and there has been but one failure in the other forty-one cases, the presentation of this subject would appear justifiable.

In this case, in which the operation was not successful, I was able to heal the ulcer and greatly improve the edema of the patient's leg, but, unfortunately, an epithelioma developed at the site of the skin grafts

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(pinch grafts). Since the patient would not allow radium to be used, he drifted out of my observation and died. I was unable to find out the cause of his death, but was informed that the malignant condition had become extensive a few months before death. Sections of this epithelioma were definite and I believe that the "sore" on his leg, after the patient was no longer under my observation, was a continuation of the malignant condition and not a recurrence of the ulcer. Of this, however, I am not certain. As this case is in the series, it should be included here, in spite of any views that I might have concerning the etiology of the epithelioma in the graft.

RELIEF OF PATIENTS

By "success" I do not mean to imply that the leg has become normal or that it is as good as the opposite and unaffected leg. However, these patients have been relieved from pain; the ulcers have completely healed; the swelling of the leg has been greatly reduced, and they have returned to their various occupations, without any marked degree of physical discomfort or the necessity of wearing an elastic stocking or applying Unna's paste legging.

These cases of ulcers have many points that are fairly constant. In most of the patients the varicose veins have been removed; all of them have swelling of the feet and legs below and around the ulcer. All the ulcers "weep" a thin serous, odiferous pale yellow fluid, which irritates the surrounding skin and sometimes nauseates the attending physician.

The ulcers usually start on the inner and lower side of the leg, frequently spread until they become the well known "saddle shaped" and, occasionally, encircle the leg. Associated with these ulcers are always edema and swelling, which are naturally more marked after prolonged dependent positions.

It is, perhaps, trite and certainly puerile, but always sensible, to call attention to the necessity of thoroughly considering the causes of a disease before contemplating the principles underlying its cure. However, with these ulcers, I am sure there has not been sufficient consideration given to the etiology; otherwise, the usual accorded treatment would have been different. The generally accepted view, of course, is that the whole process is due to damaged varicose veins with subsequent trauma and infection. Until recently no consideration has been given to the lymphatic system, either as a causative factor or as to its value in applying curative measures. It is in a proper valuation of the rôle played by the lymphatic system, I believe, that a distinct advance in the care of these chronic ulcers is to be found. However, before further considering the association of the lymphatics with the failure to cure completely such a large percentage of the chronic ulcers, by commonly accepted surgical procedures, it would be well to review briefly all the tissues involved.

Varicose Veins: Homans, in 1916 and again in 1917, presented the subject of varicose veins and ulcers in a most lucid manner and, to those who are interested in this subject, a careful perusal of both of his articles will be helpful in bringing every one to look at this complex problem from somewhat the same angle. He classified varicose veins according to their etiology into two groups: (1) those following mechanical forces due to occupations which require tension on the abdominal muscles, or prolonged standing on the feet, without exercise to assist in the return flow of venous blood up the leg by the muscles helping the veins push the blood from one valve to the one higher; (2) those due to infection such as phlebitis, "milk leg", etc.

VARICOSE VEINS CLASSIFIED

A clear differentiation should be made between these two groups, for, with the cases of varicose veins following phlebitis, more careful attention should be paid to preventing the infection from involving the lymphatics. Infection is sooner or later superimposed on varicose veins due to mechanical causes, but the lymphatics are necessarily in-

vaded by infection earlier when there is a primary phlebitis present.

It is possible that the day is not far distant when all surgeons will remove segments of inflammed veins in postoperative and typhoid phlebitis, or "milk leg" following labor, etc. Such practice does hasten the period of convalescence, and also prevents infection from involving the lymphatics, which as a rule, follows the course of the veins. During the past eight years we have removed fragments of inflammed veins in fourteen cases of postoperative phlebitis with most gratifying results. Such practice should also tend to prevent the formation of future ulcers. For a "working basis", Homans also divided varicose veins into two other groups: (1) the simple surface varix, and (2) the surface varix complicated by varicosity of the perforating veins.

In order to differentiate properly these two classes, certain tests have been formulated and these will be demonstrated in the moving picture. These tests help one in classifying the types of varicose veins, and they make one certain that varicose veins exist and that one is not dealing with a dilated and prominent vein associated with a diabetic, "trophic" or syphilitic ulcer. It is possible, though rare, to find calcification of the walls of varicose veins in patients who do not have arteriosclerosis. This process is probably a result of nature's attempt to prevent rupture of the wall of the vessel.

In many cases associated with edema and in abnormally fat people, these tests are of little value, for the veins cannot be seen and often cannot be felt. It is in such cases that a careful history, properly interpreted, is of paramount value in deciding on the best operative procedure.

METHODS OF TREATMENT

Methods of Treatment: Varicose veins should be cured early and before secondary changes, such as infection, ulcers, lymphangitis, etc., have developed. At the start the condition can be corrected fairly easily by proper surgical measures. It is in these cases that the comprehensive contribution of Dr. Homans has been of such great value. He called attention to the importance of correctly understanding the structure and function of the "perforating" veins which connect the superficial veins with the deep veins. It should be recalled that the valves in these "perforating" veins are so arranged as to allow the blood to go only from the superficial veins toward the deep veins. If these valves cease to function, there will naturally be a leakage of venous blood back into the soft tissues, with the consequent formation of a "stasis" ulcer, or the development of a varix. In accepting this state of affairs to be a fact, one must see the apparent necessity for ligating the "perforating" veins. Particularly is this true if the "constriction" test has demonstrated the valves in these veins to be defective. The injection method fulfills such requirements.

INJECTION DANGERS

Unquestionably, many patients with varicose veins have been cured by the injection methods, but this procedure is not without its dangers. While no cases of death from emboli have been reported, still the literature contains the report of deaths from an apparently latent infection, which has been "stirred up" by the intravenous and perivenous infections. Most advocates of the injection methods warn against the possibility of injecting the solutions into the tissues around the veins on account of the subsequent formation of abscesses, etc., from tissue necrosis. Therefore, the method is not as easy as it might at first appear to be. In most of these large ulcers, it is impossible (due largely to the great amount of swelling present) either to see or to feel the veins. In such cases no injections should be attempted. I have seen eleven cases of ulcers of the leg in which the injection method had been employed; three of the patients did not have the ulcer until after injection into the vein, and there had been no improvement in the condition of the ulcer in the other eight. However, I have seen personally many

patients with varicose veins who have been either cured or markedly benefited by the injection method. When the varicose veins are definitely due to mechanical causes, intravenous injection is a valuable addition to the treatment; but when they are due to infection, the principle is unsound surgically and hazardous from a practical point of view. It is also next to impossible to estimate whether a latent infection in the vein is present or not.

As will be shown later in this article, the obstruction of the lymph channels plays an important rôle in the causation of ulcers, and the chemical irritation with subsequent fibrosis on which the success of the injection method depends, serves to increase the chances of a lymphatic blockage, and, thereby, tends, possibly to produce future ulcers.

No one operation or type of injection is applicable to all types of varicose veins, but there is one procedure, which should never be omitted in any case, and, that is, the tying off, first, of the saphenous vein close to its entrance to the femoral. If possible, the vein should be removed from the thigh to a point below the knee. It is best to do this first before any form of attack is made on the veins in the leg.

SYMPATHETIC NERVES

Arteries and Veins: After having studied the veins, one's attention naturally turns to the valuation of the rôle taken by the arteries and nerves. These are considered together, largely because of the intimate relation existing between the arteries and the sympathetic nerves. Naturally, in this connection one turns to the pioneer work of Rene Leriche and his co-workers. It is logical to presume that the infection, etc., which starts in the veins should ultimately involve the arteries, either by direct extension of the infection or by the increased resistance to the onward progress of the blood, causing a hypertrophy of the arterial wall. Evidently, Leriche felt that by doing the periarterial sympathectomy he was able to overcome whatever handicaps might have been placed on the arteries by the formation of connective tissue around these ulcers. In fact, he stated:

"The ulcer is consecutive to a dermo-epidermic necrosis springing from an arterial ischemia, sometimes spasmodic, which creates a positive loss of substance always much greater than the apparent ulceration. The ulcer is incurable because the bad local circulatory conditions lead to an imperfect nutrition of the soft parts where the viability of the tissues is always mediocre."

In November 1916, Leriche with his associate R. Fontaine, reported results in sterilization of infected wounds and ulcers by periarterial sympathectomy. Briefly, they stated three observations:

LERICHE AND FONTAINE

1. A chronic ulceration "is always infected to infinity by a large variety of microbian species." As the bacteria are found deep in the tissues, external medication is of no avail.

2. Soon after sympathectomy, the appearance of the ulcer changes.

3. From the fifth to the thirteenth day the wound is "practically and bacteriologically sterile." They ascribed this sterilization of the wound to the "afflux of leucocytes to the level of the ulcer." After making the ulcer sterile, they believe in replacing the lost skin by means of grafts, and prefer the Davis graft. They found that this sterilization of the ulcer is of comparatively short duration, it is therefore necessary to place the graft on the surface before reinfection takes place. They found the most favorable moment to be between the seventh and twelfth day after periarterial sympathectomy. Leriche, in speaking of varicose ulcers, made this final statement: "I make it a habit at the time of the sympathectomy to add to it a saphenectomy after the manner of Babcock." This is but another illustration of how, when one becomes enthusiastic concerning some particular point, one is apt to attach to it undue importance.

Knowing these views of Leriche, I decided to try periarterial sympathectomies in prep-

aration for radical operation in two of these cases of extensive varicose ulcers. I regret that my results were not conclusive, for I could not see any more change in the ulcers on which I had done a periarterial sympathectomy than I thought I had observed in somewhat similar cases of ulcers in which treatment consisted of rest and elevation of the leg. In these two patients, I did not obtain sterilization of the wound. With rest and elevation of the leg, there is lessened subcutaneous venous stasis and as a result decreased bacterial invasion. In these two patients, the prompt cessation of pain within twenty-four hours after the periarterial sympathectomies was striking. There was far more and quicker relief than is usually seen following rest and other methods employed in the preparation of patients for any operation for varicose ulcers. However, two cases are not sufficient material on which to make proper deductions, and, certainly, Leriche's reputation and surgical logic is such that his method deserves a much more extended observation by numerous surgeons.

It is possible that the combination of the lumbar sympathectomy or sacrosympathectomy with the periarterial sympathectomy might prove more satisfactory than the periarterial sympathectomy by itself. Such an operation is as extensive as the radical operation for varicose ulcer, which, when properly performed, gives definite and gratifying results.

INJECTION OF ALCOHOL

Recently there have been numerous reports of the injection of alcohol into the nerves close to the ulcer for relief from pain. This, at best, is only a palliative measure and has no practical application in the preparation of the patient for operation, for pain is effectively relieved with rest and elevation of the leg. I cannot help but feel also that such injections produce fibrous tissue, thereby the lymphatic blockage is increased, and the treatment may prove distinctly harmful. However, physicians are just beginning to learn something about the surgical treatment of the nervous system and should withhold all hasty judgment.

It is interesting to recall that in 1851 Carnochan (quoted by Matas) ligated the main artery of the limb with the "view of restricting the circulation and, thereby diminishing the tendency to lymph dropsy and stasis." No benefit resulted from this procedure.

VENOUS STAGNATION

It has been clearly demonstrated that the pigmentation of the skin seen before the ulcer forms is due to subcutaneous venous stagnation and the consequent failure of the venous and lymphatic systems to remove certain of the blood pigments. After the ulcer forms, the pigmentation usually continues to exist for several inches around the ulcer. With the skin in such a condition, the slightest trauma results in an abrasion on which infection is superimposed, and at such a site an ulcer quickly develops. The protective invasion of round cells is soon replaced by fibrous infltration. Following this, blockage of the arterial supply, as well as of the venous and lymphatic return, occurs. If the infection is virulent, naturally necrosis of skin which sometimes involves extensive areas soon follows. To add discomfort, there is poured out on the skin a thin, watery, yellow fluid with a most disagreeable odor. This excretion further irritates the already devitalized skin. It is more than likely that some of this excretion is lymph. To a less degree the same processes attack the subcutaneous fat, the fascia, the muscles, the periosteum, and in severe cases, the tibia. In this series, there have been only five cases extensive enough to cause osteitis of the tibia. In both of these cases, there was the history of the "shedding" of superficial sequestrums. In twenty-one other cases not only was the periosteum involved, but there was also eburnation of the tibia to such an extent as to suggest strongly that the infection had extended to the bone.

With this extensive infection, the usual fibrous tissue replacement occurs, and, as the years pass, this layer often becomes almost like leather, and sometimes contains areas of

calcification. At this stage of the development, I believe two important factors are usually overlooked in the surgical treatment. The first is the one to which Dr. Homans has called attention, e. g., the "perforating" veins. The second is the lymphatics.

LYMPHATIC BLOCKAGE

If the edema usually associated with these large ulcers and always present in the recurrent cases is due to a lymphatic blockage it is self-evident that measures must be instituted to overcome this condition, before any rational hope of a permanent cure can be entertained.

The Lymphatics: Matas called attention to the fact that simple mechanical edema is incapable of exciting proliferation of the connective tissue. He further stated that Unna, Darier, Le Dantec, Sir Patrick Manson and others have demonstrated that the blocking of the lymphatic channels with Filariae is not by itself sufficient to produce these connective tissue changes, but he thought that repeated attacks of streptococcal infection superimposed on the existing lymphatic block is necessary to cause the conditions found in the subcutaneous tissue and skin. A history of repeated attacks of "erysipelas" is associated with cases of "ulcer." While such attacks are not superimposed on a lymphatic blockage produced by Filariae, these streptococcal infections are grafted on a lymphatic blockage due to lymph coagulation and pressure from fibrous infiltration. Such being the situation, one occasionally sees an "elephantoid state" associated with these ulcers. Gesser, with Dr. Matas, reported one such case in 1913.

In his operation for elephantiasis, Kondoleon suggested a possible means of meeting this surgical dilemma.

Kondoleon, in 1912, in his operation for the cure of elephantiasis, advocated the removal of a long strip of this fascia so as to allow the lymph, etc., to be removed by the deep lymphatics. It is interesting to note that a review of the literature discloses only 281 cases of the Kondoleon operation for elephantiasis nostra streptogenes. In these reports, all of the patients have been improved. Kondoleon reported twenty of these cases, and concluded that the ultimate outcome of the whole is not as good as was anticipated from the great improvement at first. All his patients have been improved, and in none did the condition grow worse. There must be a few hundred such operations which have not been reported in the literature, for I personally know of but few clinics where one or more of the Kondoleon operations have not been done and not reported. Burke reported twelve cases, but did not give the etiology of any of them. As these were in Porto Rico, Filariae might have been present. His results were bad. Sistrunk stated that there has been improvement in his series of 100 cases, though in some instances, he had to do three or four operations before obtaining a satisfactory result. His experience has also been somewhat similar to that of Kondoleon as regards the permanency of the improvement. Sistrunk, further, feels that a large factor in the improvement of these patients is to be found in the removal of the diseased tissue, in addition to the removal of the fascial barrier and the regeneration of the lymphatics.

REGENERATION OF LYMPHATICS

Naturally, the next question to arise is: What proof is there of any regeneration of the lymphatics? Of course, the success of the Kondoleon operation in improving the cases of elephantiasis nostra streptogenes is some clinical proof, but, in addition to such testimony, there has been much interesting experimental work to show conclusively that lymphatics do regenerate. The beneficial results following the removal of the fascia might be due to having the superficial tissues drained by the deep lymphatics. However, as one reviews the experiments of Halsted, Coffin, Evans, Opie, MacCallum, Reichert, Sabin and others, one cannot help but be impressed with the possibility and also the rapidity with which collateral vessels form and lymphatic vessels regenerate.

My belief is that the edema, etc., is due not only to the blockage of the venous system, but also to the obstruction of the return of lymph. The obstruction of the lymph is due to the blockage of the lymph channels and nodes by the fibrous tissue, which follows the infection. This class of cases is most difficult to handle and the solution is found not only in the attention given to the veins, but also to the lymphatics. In such cases I believe both the width and the length of the fascial strip removed should be greater than the amount of superficial fat, etc., removed, when the lymphatic block is confined to the superficial lymphatics. To establish a free path for the unhampered regeneration of the lymphatics, it is necessary to remove the strip of fascia higher than the edema, and particularly is this true when the swelling is the result of involvement in the deep vessels and lymphatics. Of course, in these cases the strip of fascia is removed from both the inner and outer sides. In one case in which the swelling extended well up on the thigh I obtained a gratifying result by removing on the outer side, the fascial strip several inches above the crest of the ileum. The extent of fascia removed is dependent, as in the Kondoleon operation for elephantiasis, on the swelling.

ELEPHANTOID STATE

I do not mean to imply that the swelling usually associated with these extensive ulcers of long duration is an elephantiasis. However, I do state that if these ulcers are allowed to continue long enough, the surrounding tissue will assume an "elephantoid state", which clinically and histologically resembles elephantiasis nostra streptogenes. If this observation is correct, extensive removal of the fascia is indicated in such ulcers. In ulcers of not so long standing and of limited involvement, this principle should also be applied, but such a condition does not require as extensive removal of fascia. The fact that recurrences are frequent after removal of varicose veins and grafting the ulcers shows, to my mind, that sufficient lymphatic return has not been provided.

I readily admit that in my enthusiasm I have led to apply the operation in a few cases in which less extensive measures would probably have sufficed. However, the principle of establishing a sufficient lymphatic return is, I am sure, correct.

FROZEN PARTS

The secret of good first aid for freezing is to thaw the frozen parts slowly, Dr. Charles C. Lund declares in his article devoted to correct methods of first aid on the ski trails. This article is "Skiing," and it appears in the January issue of *Hygeia.*

Never rub the frozen parts with snow. Never use warm water or direct heat from a fire or radiator, he emphasizes. Gentle rubbing of painfully frozen hands or feet with very soft, dry fur will probably give maximum relief from pain.

To a large extent freezing toes, ears and other parts can be avoided by use of proper clothing. No clothing should be too tight. Tightness is especially dangerous to the feet, as the foot or toes are more likely to be seriously frozen without knowledge than other parts of the body.

Injuries to skiers may bring up unusual first aid problems because an accident may happen at some distance from a road and the weather may be quite severe. However, the peculiar characteristics of skiers' equipment lend themselves to remarkably efficient handling of the injured person if certain principles of first aid are known.

If each skier carries the following short list of simple supplies, good first aid equipment can be improvised easily: a knife, six large safety pins, ten feet of cord, three squares of surgical gauze and one 3-inch elastic weave bandage. With these and skies, poles, sealskins and clothing a party of four can make a toboggan by lashing together four skis.

Following an accident the first essential is a diagnosis of the patient's injury and of the situation. Do not undress the patient, even in part, unless there is evidence of a wound. If there is one, cut away enough clothing to expose it. In other injuries, look first to see whether the arm or leg is deformed or shortened. If so, it is probably broken, or there may be a dislocation of a joint. If the patient can move the limb well without great increase in pain, there is probably no serious fracture.

The injured skier cools off rapidly. For this reason first aid must be rapid and efficient to be of value.

BENIGN CHORIOMENINGITIS (ASEPTIC MENINGITIS) *

(A Report of Seventeen Cases)

By D. C. ASHTON, M. D.
Beckley, W. Va.

DURING the last two years, seventeen cases of a benign, acute, inflammatory disorder of the central nervous system have been observed, and it is my purpose to present, in this report, the clinical and laboratory findings in these cases. Twelve of the seventeen cases occurred in the last three weeks of August, 1935, and might be classed as a mild epidemic. The remaining five patients were seen at intervals within the two year period, but all were so similar in clinical manifestations that they are included in this study.

BENIGN MENINGITIS

Benign meningitis, without discovered bacterial cause, has been referred to in the literature frequently within the last several years. Wallgren[1] in 1925 used the term "aseptic meningitis," and since then studies by Toomey,[2 3] Dummer,[4] Armstrong and Wooley,[5] Abramson,[6] Scott and Rivers[7] and others have added new cases to the list and given experimental evidence as to a possible causative agent. Terms such as "benign lymphocytic meningitis," "lymphocytic choriomeningitis" and "aseptic lymphocytic meningitis" have all been used in the definitive terminology and the multiplicity of names suggests uncertainties in the diagnostic criteria.

In the patients studied in this report, the symptoms, while somewhat variable, were characterized by considerable similarity. The onset in all instances was sudden. Headache was the initial prevailing symptom, and was accompanied by pain or soreness in the neck, in all but two cases. Chilliness without frank chill was experienced by five and fever of 100° F or above was observed in nine patients. Of the remaining eight, five never showed temperature readings above 99° F. Therefore, in this group, fever was not a prominent factor, for as may be seen in Table I, temperatures as high as 102° F were seen in only two patients. Nausea and vomiting occurred in five instances, but was usually of short duration. Generalized muscular aches and pains were complained of by five patients and abdominal pain was noted by six. The pain was confined to the upper abdomen and lower chest, was generalized and not severe. Three of the cases had slight soreness of the throat which lasted two or three days. Mental disturbances were not present except in two patients, and lasted less than twenty-four hours in each case. One of these was the oldest of the series—59—and the other was one of the few with definite fever. The mental disturbance was characterized by delirium which was present only a few hours. Muscular weakness or paralysis never occurred in any case.

CEREBROSPINAL FLUID

The physical findings in the group were not noteworthy except in three patients who had positive Brudzinski's and Kernig's signs. Essential hypertension was found in one case, a colored woman aged 40. Otitis and sinusitis were not found, nor were there any signs of pharyngeal or pulmonary infection. Neurological examinations revealed no pathologic reflexes or abnormalities of the cranial nerves. Paralysis or weakness of muscles or muscle groups was not seen in any case. The sensorium was normal except in the two patients with transient delirium.

In the laboratory examinations, the cerebrospinal fluid showed abnormalities in every patient. As may be seen in Table I, increases in globulin content and cells were present generally. The fluid pressure was variable but was usually elevated. All lumbar punctures were done with the patient lying on the

*From the Medical Service of the Beckley Hospital, Beckley, W. Va.

TABLE 1

Age and Sex	Date of Onset	SPINAL FLUID EXAMINATION						Highest Fever F°	Duration of Illness (Days)	Result
		Pressure MMS H_2O	Globulin	Cell Count	Per Cent Polys	Per Cent Lymphs	Culture			
38 M	5-22-35	200	Trace	156	20	80	No Growth	99.6	14	Well
14 M	8- 9-35	160	Trace	150	66	34	No Growth	99.	7	Well
25 F	8-14-35	200	+	297	58	42	No Growth	101.	8	Well
26 F	8-20-35	155	Trace	57	55	45	No Growth	99.	6	Well
21 F	8-21-35	200	+	480	8	92	No Growth	99.	6	Well
14 M	8-23-35	200	+	285	71	29	No Growth	99.	4	Well
24 F	8-23-35	175	+	432	6	94	No Growth	100.6	7	Well
34 F	8-24-35	150	Trace	117	33	67	No Growth	99.6	10	Well
40 F	8-26-35	180	+	432	66	34	No Growth	100.	5	Well
22 M	8-27-35	160	Trace	192	44	56	No Growth	100.4	6	Well
59 M	8-27-35	180	Trace	72	56	44	No Growth	100.4	18	Well
18 M	8-31-35	200	+	231	34	66	No Growth	99.	19	Well
13 F	9- 2-35	250	Trace	210	65	35	No Growth	102.2	23	Well
37 M	1-11-36	200	Trace	360	80	20	No Growth	101.4	13	Well
34 M	4-27-36	225	+	522	48	52	No Growth	102.	15	Well
39 F	9-10-36	175	Trace	216	55	45	No Growth	99.4	6	Well
21 F	1-16-37	180	Trace	150	48	52	No Growth	101.2	11	Well

side and, as can be seen in the table, the pressures ranged from 150 to 250 millimeters of water. The differential counts revealed a predominance of polymorphonuclear neutrophils in nine cases, and a majority of lymphocytes in eight. In two cases, the percentages were so close together that the figures are not convincing. The total blood leukocyte count was above normal in about half the patients, and normal in the remainder with an average leucocyte count of 11,100. The differential counts were not remarkable with polymorphonuclears varying from 55 per cent to 90 per cent and lymphocytes from nine per cent to 42 per cent. In all cases the blood and spinal fluid Wassermann reactions were negative. In four patients colloidal gold tests were made and showed no reaction, and spinal fluid dextrose determinations on two occasions gave results of 50 and 75 milligrams per 100 c.c.'s respectively. Cultures on all specimens were reported as negative for bacteria.

TABLE 2

Symptoms	17 Cases
Headache	17
Soreness in Neck	15
Backache	16
Chilliness	5
Pain in Abdomen	6
Fever (100° for above)	9
Sore Throat	3
Nausea and Vomiting	5
Myalgia	5
Delirium	2
Muscular Weakness	0
Paralysis	0

TABLE 3

Signs	17 Cases
Stiffness of Neck	5
Pain on Motion of Neck	10
Kernig's Sign Positive	3
Brudzinski's Sign Positive	3
Cranial Nerve Palsies	0
Reflexes Absent	0
Pathological Reflexes	0

TABLE 4

Additional Laboratory Data	17 Cases
Highest Leucocyte Count	19,000
Lowest Leucocyte Count	6,250
Highest P. M. N. Count	90%
Lowest P. M. N. Count	55%
Highest Lymphocyte Count	42%
Lowest Lymphocyte Count	9%
Blood Wassermann Reactions	All Negative
Spinal Fluid Wassermann Reactions	All Negative
Colloidal Gold (4 cases)	No Reaction

LUMBAR PUNCTURES

In the therapeutic management of this series lumbar punctures seemed to afford most relief from the headache and soreness of the neck. The relief was most pronounced when the fluid pressure was increased. Punctures were repeated three or four times in some patients, while in others a single puncture was sufficient. In those cases in which multiple punctures were done it was noted that the cell counts came to normal in from one to two weeks and, in general coincided with clinical improvement. Sedatives and analgesics were used as indicated. In the majority of patients improvement began in two or three days and complete recovery occurred in from one to two weeks. In four instances —24 per cent—convalescence was delayed, but in only one was it as long as three weeks.

The symptom complex as seen consisted in an acute, benign inflammatory disease of the central nervous system of short duration, and followed by complete recovery without sequelae. The difficulties in giving an accurately descriptive name to this syndrome are obvious. Meningitis it most certainly was, but meningitis is a generic term and is often loosely used. Furthermore, it would be almost impossible to exclude entirely the presence of parenchymatous involvement of the brain or cord even though the meninges would seem to be principally affected. In fact involvement of the cerebral cortex has been observed in a case[11] that is apparently closely related to these herein reported. "Lymphocytic meningitis" as a clinical entity has been referred to frequently of late, but, in this small series, nine of seventeen patients had a predominance of polymorphonuclears in the

spinal fluid, and in two the percentages were so nearly equal that there would be a reasonable doubt as to which type of cell did prevail. Therefore, only six—35 per cent—had a definite increase of lymphocytes in the cerebrospinal fluid. Three of the cases did have strongly predominant lymphocyte counts, and from a laboratory standpoint, may be different from the rest. In all other respects, however, as far as symptoms, signs and clinical course were concerned, the similarity was striking and seemed to include all seventeen cases in the same category. Because of the resemblance of this series to the numerous cases in the literature classed as "choriomeningitis", it was decided to classify them under this nomenclature, although the question as to whether they can all be classed "lymphocytic" choriomeningitis remains in doubt.

In the differential diagnosis the most troublesome problem was to eliminate acute encephalitis and acute anterior poliomyelitis. When one considers the varied forms and manifestations of encephalitis and the still somewhat confusing clinical pictures the various type of this disease may produce, difficulties are encountered when an attempt is made to rule this out as a diagnostic possibility. None of these patients gave any history or showed any signs of involvement of the cranial nerves. Neither was there any somnolence, mental lethargy or excitement, except in the two cases in which a mild delirium existed for a short while. Most important of all, postencephalitic phenomena were entirely absent.

ABORTIVE POLIOMYELITIS

Abortive or non-paralytic poliomyelitis was also considered. Against this diagnosis the most important point was that in none of the seventeen cases were there ever any signs of muscular weakness or paralysis. Furthermore the diseases occurred almost exclusively in adolescents and young adults, with three-fourths of the cases definitely in the adult group. Finally, there was no proof or evidence of contagion as not more than one case appeared in any one family.

Tuberculous meningitis was not considered because of complete recovery of all the cases, and syphilis of the central nervous system was eliminated by negative complement fixation reactions.

VIRUS INFECTION

The nature of the etiologic agent of this syndrome is obscure. Facilities for immunological studies were not available, but many similar cases in the literature have been apparently found to be due to virus infection. In the last three or four years Armstrong and Lillie,[8] Lepine and Sautter,[9] and Rivers and Scott[7] have demonstrated a virus as a possible cause in analagous central nervous system disorders. Armstrong and Wooley[5] have found protective antibodies against this virus in 11 per cent of serums tested by the serum virus mouse protection test. Antibodies have also been demonstrated by these workers in 32 per cent of patients who recovered from "aseptic meningitis." In addition, the virus has been found abundantly in the body tissues of infected monkeys, and tissue changes secondary to the virus infection have been reported by Lillie.[10] Pathological reports on humans are scarce. In Viet's and Warren's[11] fatal case of "acute lymphocytic meningitis" there were lymphocytic infiltrations in the meninges and cerebrum extending into the white matter. Areas of involvement were widespread perivascular lesions accompanied by degeneration and glial proliferation. In experimental intracerebral inoculation of infected cerebrospinal fluid into mice, a lymphocytic infiltration of the meninges and choroid plexus is found to occur. This has given rise to the term "choriomeningitis" which is being used to describe this disease entity.

Summary: 1. Seventeen cases of an acute, benign, inflammatory disease of the nervous system are reported.

2. These cases resemble those reported by numerous observers in the last few years, al-

though the reports give several different names to the disease.

3. The disease is of short duration and progresses to complete recovery.

4. It probably belongs in the group of virus infections.

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THE DIAGNOSIS AND TREATMENT OF UTERINE BLEEDING*

By JEROME E. ANDES, Ph.D., M. D.
Morgantown, W. Va.

UTERINE bleeding, in the strictest sense, would refer to any passage of blood from the uterus, which would include the normal menstrual flow. In a gynecological sense, the term uterine bleeding usually refers to an abnormal passage of blood from the uterus, or more specifically to any profuse, irregular, or prolonged uterine hemorrhage. The abnormality may be a menorrhagia (excessive menstruation or abnormal flow of blood at the regular menstrual period), or a metrorrhagia (uterine bleeding between the menstrual cycle). Furthermore, the menorrhagia may consist of an increased amount of blood at the regular period, a prolongation of the period of bleeding, or a too frequent recurrence of the menses. Metrorrhagia may consist of a very small amount of blood passed at intervals (spotting), or a more massive hemorrhage, continuous or intermittant, which occasionally is so profuse as to endanger life.

Due to the fact that there is such a variation in the monthly flow in apparently normal women, a carefully taken menstrual history is exceedingly important in the diagnosis of the cause of uterine bleeding, especially where the abnormality is a menorrhagia. The age of the patient, time of puberty, length of each menstrual period, regularity and duration of the interval, character, amount and odor of the bloody discharge, presence or absence of pain, the date of the last menstrual period, and any recent changes in the menstrual cycle are all highly important. One should also inquire about the changes produced by marriage, if the pathology dates from a miscarriage or abortion, and the occurrence of pelvic inflammatory disease or gonorrhea. It is useful to know if the patient has ever passed clots, as such are rarely seen in the normal menstrual blood. In older

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patients symptoms of malignancy should be looked for in all cases.

All patients should receive a complete examination, both general and local. The general examination should include the heart, kidneys, lungs, and an examination of the blood; one should always be on the alert for signs of malignancy. The local examination should include an abdominal examination; a vaginal, together with a bimanual examination (except in a virgin with an unruptured hymen, in which a rectal examination may have to suffice); a curettage if indicated with the tissue examined by a pathologist; a biopsy if a lesion suggesting a neoplasm is discovered; smears or cultures in suspected infection; and the use of the x-ray in rare instances. Certain hormone tests appear to be useful in the functional types of uterine bleeding, and, in cases where pregnancy cannot be ruled out, some modification of the Ascheim-Zondek or Friedman test may be invaluable.

ENDOCRINE DISTURBANCE

Menorrhagia in the young women is usually due to endocrine disturbances, pelvic infections, or submucous fibroids; in the older woman (especially past 40) fibroids, polyps, and the changes of the menopause are the most common causes. Metrorrhagia in the young woman is nearly always due to some complication of pregnancy; in the older woman (in addition to pregnancy) the various forms of malignancy of the uterus and uterine fibroids are the most common etiological factors. Since menorrhagia and metrorrhagia do not always occur alone, but are often found together, it is not convenient to discuss the question of uterine hemorrhage under these headings. In order to make the subject more concise, the diagnosis and treatment of uterine hemorrhage will be taken up separately for each different disease or condition (in which uterine bleeding may occur), using the outline below:

A. Dependent on Pregnancy:
   1. Abortion and Miscarriage.
   2. Ectopic Pregnancy.
   3. Hydatidiform Mole.
   4. Chorionepithelioma.
   5. Placenta Prævia.
   6. Premature Separation of the Placenta.
   7. Postpartum Hemorrhage.
   8. Subinvolution of the Uterus.

B. Independent of Recent Pregnancy:
   I. Benign Conditions:
      1. Uterine Fibroids and Adenomata
      2. Polyps (Cervical or Corporal).
      3. Malpositions of the Uterus.
      4. Lacerations of the Cervix.
      5. Hyperplasia of the Endometrium.
      6. Pelvic Inflammations.
      7. Benign Ovarian Tumors.
      8. Uterine Bleeding from Constitutional Diseases.
      9. Miscellaneous Causes of Uterine Bleeding.
      10. Functional Uterine Bleeding.
   II. Malignant Conditions:
      1. Carcinoma of the Cervix.
      2. Carcinoma of the Body of Uterus.
      3. Sarcoma of the Uterus.
      4. Malignant Ovarian Tumors.

UTERINE BLEEDING ASSOCIATED WITH PREGNANCY

In all of these conditions the woman is in the child-bearing age, and usually shows (or gives a history of) one or more of the signs and symptoms of pregnancy. The Ascheim-Zondek test, or one of its modifications, is usually positive. Often the history alone will make the diagnosis. Since abortions and miscarriages are by far the most frequent causes of uterine hemorrhage during the child-bearing age, they should always be ruled out. Only with a hydatidiform mole or a chorionepithelioma is a biopsy essential. Although the treatment of these conditions is largely obstetrical, the main fundamentals of the therapy together with the principal points in diagnosis, are given below.

Abortion and Miscarriage: The diagnosis is made largely upon the appearance of a uterine hemorrhage, usually associated with

cramps and preceded by a missed menstrual period. The presence of fetal parts or membranes in the discharge clinches the diagnosis. The Friedman test (and all modifications of Ascheim-Zondek test) is positive before the abortion, but becomes negative soon afterward unless it is incomplete. Continued bleeding and a positive test shows that some of the products of conception have been retained.

METHOD OF TREATMENT

The treatment of this condition depends upon whether the abortion is only threatened or is inevitable. In the former, the patient is put to bed, given sedatives, and care taken to prevent any outside infection. This routine must continue at least one or two weeks after hemorrhage ceases. In inevitable abortion the uterus is treated according to whatever obstetrical procedure is most desirable, the main object being to empty the uterus completely. Blood transfusions are often necessary and rest in bed is imperative. If the hemorrhage is due to retained products of conception, and there is no infection present, the uterus is emptied by careful curettage, followed by pituitrin or some ergot preparation. If much infection is present, only symptomatic treatment is used, together with oxytocic drugs. In all cases extreme asepsis must be practiced.

Ectopic Pregnancy: The diagnosis of this condition can usually be made on the presence of a missed period and scanty uterine bleeding, together with finding a mass and tenderness in the adnexa, a soft cervix and a slightly enlarged uterus. Cramp-like pains in the lower abdomen may be present, and the temperature is usually normal. The Ascheim-Zondek test is generally positive and other symptoms of pregnancy may be observed. However, the diagnosis is frequently very difficult, and is missed by the best of gynecologists. Of course in ruptured ectopic pregnancy, the acute symptoms of pain and collapse, together with the signs of intra-abdominal hemorrhage and other characteristic findings, are usually quite diagnostic in themselves. In all cases the treatment is to remove the offending tube and fetus as soon as possible.

Hydatidiform Mole: This tumor, which is a cystic degeneration of the chorionic villi, is chiefly characterized by a fairly rapid enlargement of the uterus with metrorrhagia, following an abortion or normal pregnancy. Palpation may reveal the grape-like mass, which when large may extrude from the uterus or vagina. In most cases the removal of the uterus is indicated, particularly since this tumor frequently precedes a chorionepithelioma. Some advise removing the tumor with a curette, and where severe hemorrhage is present to use radium to stop the bleeding after the curettage.

Chorionepithelioma: This tumor, while very rare, is one of the most malignant of all neoplasms. It is a highly invasive tumor arising from the chorionic tissue of the placenta. It usually follows labor, abortion or a tubal pregnancy; in one-third to one-half of the cases it is preceded by a hydatidiform mole. The tumor is chiefly characterized by metrorrhagia, rapid uterine enlargement, and early, widespread metastases (especially in the lungs). The Ascheim-Zondek test is positive in all cases. A biopsy is necessary for the diagnosis, and x-rays of the lungs are helpful in ascertaining whether metastasis has occurred. The treatment is to remove the uterus immediately. The prognosis is usually hopeless, although even spontaneous cures are recorded.

SPONTANEOUS BLEEDING

Placenta Praevia: This condition, which refers to the attachment of the placenta over or near the internal os of the uterus, is chiefly characterized by spontaneous painless hemorrhage appearing without a cause during the last three months of pregnancy. Each attack is usually followed by others, each succeeding hemorrhage being more severe than the previous one. On examination of the cervix, the placenta can be felt as a spongy mass over or near the internal os. The treatment is obstetrical and consists of blood transfusions,

treatment of any shock present, and evacuating the uterus as soon as possible, by the most appropriate method. Caesarean section is generally employed with the central type. If the child is viable, and the amount of hemorrhage small, it may be possible to delay any radical procedures until the child's life is assured.

Premature Separation of the Placenta: This condition usually occurs during the last three months of the gestation period, and is chiefly characterized by cramping pains and uterine hemorrhage. If the blood is confined within the uterus ("hidden"), the uterus enlarges and becomes hard and ligneous, and little or no external blood may be found. However, a vaginal examination will reveal the tense, bulging placental membranes. In both types, the loss of blood is often marked, and anemia and shock are usually present. Treatment is entirely obstetrical, and consists of treating the shock and evacuating the uterus by the most desirable method (Caesarean if not in labor; otherwise version or forceps). If bleeding is too severe a hysterectomy may be necessary.

PLACENTAL FRAGMENTS

Postpartum Hemorrhage: Since this condition is entirely obstetrical, it will not be considered here. What has been said about the retained products of conception in abortion, applies to retained placental fragments.

Subinvolution of the Uterus: This condition, which is merely a failure of the uterus to return to normal after delivery, is characterized by a large boggy uterus and a menorrhagia with the establishment of menstruation following the puerperal period. Eventually the endometrium, which is at first hyperplastic, may become fibrotic. Some believe that another pregnancy will cure the condition. For mild types, the administration of pituitrin or some ergot preparation and calcium lactate (especially after a curettage) is probably the best form of treatment. A pessary may help if any displacement is present. In severe cases it may be necessary to resort to radium to control the profuse hemorrhage, and the most severe cases often require a hysterectomy.

UTERINE BLEEDING INDEPENDENT OF PREGNANCY

With the types of uterine hemorrhage listed below, pregnancy is not characteristically present, and the percentage of sterility is markedly increased. The principal conditions causing extragestational hemorrhage are fibroids, pelvic inflammation, neoplastic growths and the so-called functional types of uterine hemorrhage. A detailed consideration of all the important symptoms of these diseases is not possible here; only the principal diagnostic points will be given, together with the more important features in the treatment.

Fibroids: This is probably the most frequent cause of uterine bleeding not associated with pregnancy. The principal features are the presence of an intra-abdominal mass, usually irregular and connected to the uterus, together with the abnormal uterine hemorrhage. The bleeding is usually in the nature of a menorrhagia, although a metrorrhagia may also be present. Bleeding is usually most marked in the submucous type, and, of course, may be entirely absent in any type—especially the subserous. The patient is generally over 30 years of age. Diagnosis is easily made with the larger tumors (especially the subserous and intramural types), but may be very difficult with the small growths. Biopsy is often useful in these cases. In the young, myomectomy should be performed if possible, using hysterectomy only as a last resort. Excellent results are reported from the use of radium with small intramural fibroids, although radium must be used with caution in a young woman. In women past or near the menopause, hysterectomy is indicated (except perhaps in small intramural tumors), if the patient can stand the operation.

Polyps: Cervical polyps are fairly frequent in women over forty, especially after the menopause. Their chief symptom is hemorrhage which is usually mild in character, but which may be fairly marked especially after manipulation. Sometimes a leucorrhea

or occasional spotting may be the only symptom. The pedunculated type is easily palpated or even visualized if external, but often an intrauterine examination with a biopsy is necessary to make a diagnosis, especially with the sessile types of growths. Treatment consists of surgical removal, followed by radium if necessary, to control the bleeding.

PELVIC DISCOMFORT

Mucous polyps of the endometrium are uncommon, and their diagnosis and treatment is similar to that of the cervical variety.

Malpositions of the Uterus: Pelvic pain and discomfort, irregular menstrual bleeding (frequently associated with the passage of clots), dysmenorrhea, and often constipation, psychic changes, backache and other vague pains, and sterility are the most important symptoms of displaced uteri. However, the diagnosis is made only after a digital examination. The treatment consists of pessaries if the condition is mild, and suspension or hysterectomy (in women past 40) if very marked.

Cervical Laceration: The chief symptom here is a leucorrhea, which may be more or less bloody, in a patient who usually gives a history of multiple pregnancies or miscarriages. The diagnosis is made by inspection and palpation of the cervix, although a biopsy may be necessary in many cases to exclude carcinoma. Nabothian cysts may be present. Treatment in mild cases consists of local antiseptics to promote healing, but the more severe cases are best treated by surgical repair (especially electrical conization) or even amputation of the cervix.

Pelvic Inflammation: Pelvic inflammatory disease, especially in the acute stage and the acute exacerbations of the chronic process, are a common cause of uterine bleeding, especially in the young negro. The hemorrhage is most severe if the ovaries are involved; it diminishes with decline of the inflammation. The diagnosis is made chiefly upon a history of, and the presence of stigmata of gonorrhea (most cases); tenderness and rigidity in the lower abdomen on one or both sides; tender masses in the adnexa on vaginal examination; moderate temperature, moderate to marked leucocytosis, and rapid sedimentation of the red blood cells; and an eroded cervix, which is usually, but not always present.

Chronic cases may only show a tenderness, fixation, and a mass in the region of the adnexa, and but rarely cause any uterine hemorrhage.

In the acute cases, appendicitis, ectopic pregnancy, infected or twisted uterine fibroids, and other acute abdominal diseases must be excluded. The treatment consists of rest in bed with heat to the abdomen and vagina, correct diet, laxatives and sedatives as needed, etc., until practically all of the symptoms have disappeared. If the disease does not clear up entirely with this treatment, surgical removal of the affected organs (usually salpingectomy and sometimes a complete hysterectomy) is necessary at the proper time. Bleeding is rarely if ever so severe as to require any special treatment.

TENDENCY FOR BLEEDING

Benign Ovarian Tumors: These neoplasms, especially the cystic types, are often a cause of uterine hemorrhage due to a hyperstimulation of the endometrium. Coexisting fibroids are frequently observed, and add to the tendency for bleeding. However, large ovarian tumors may exist with practically no symptoms except an enlargement of the abdomen. The patient may complain of a dragging pain, dysmenorrhea, backache, digestive disturbances and constipation due to the size of the tumor. Sterility is usually present. With small tumors the diagnosis may be made by palpating the ovaries in most cases; with large tumors, hydrosalpinx, renal neoplasms, ascites, fibroids, and pregnancy must be ruled out, and a laporotomy may be necessary to establish the diagnosis. Treatment consists of surgical removal of the affected ovary in young patients; in women past the menopause the removal of both ovaries, tubes and even the uterus is advisable as a prophylactic measure against its recurrence.

Uterine Bleeding Due to Constitutional Diseases: Typhoid fever, heart failure, advanced tuberculosis, blood dyscrasias, hypertension, hyperthyroidism and hypothyroidism, and other chronic diseases may be accompanied by uterine hemorrhage, which usually is not at all profuse. The diagnosis and treatment is that of the disease in question; rarely radium may be needed to control a relatively severe hemorrhage. In suspected thyroid diseases a basal metabolism should be taken; treatment in such cases consists of administering thyroid in hypothyroidism, and subtotal thyroidectomy in hyperthyroidism.

FORMS OF TRAUMA

Uterine Bleeding from Other Benign Causes: Senile atrophy, ill-fitting pessaries, excessive coitus, and other forms of trauma may at times cause actual or apparent uterine bleeding. The diagnosis is made on the history and examination, and the treatment is to remove the cause if possible.

Functional Uterine Bleeding: This term applies to abnormal uterine bleeding where no apparent pelvic pathology nor constitutional disease exists. The cause is believed to be an endocrine imbalance. It occurs most frequently at puberty and the menopause (especially the latter), but may be found at any time during the child-bearing age. Sterility is relatively common, and older women usually give a history of an irregular menstrual life. Examination is essentially negative, although a hyperplastic endometrium is frequently present. The hemorrhage ranges all the way from a slight spotting or a slightly increased menstrual flow to a profuse bleeding, and may be either in the form of a menorrhagia or a metrorrhagia. Pain is not usually present, but the passage of clots is frequently observed. Often a positive test is obtained for estrin or anterior pituitary. A basal metabolism should be taken to eliminate thyroid disease, a blood chemistry to detect diabetes or nephritis, and x-rays if indicated. In arriving at a diagnosis, one must rule out fibroids, chronic pelvic inflammation, carcinoma of the uterus or ovaries, miscarraige or abortion, cystic ovaries, ectopic pregnancy, menopause and constitutional diseases.

The treatment is often quite difficult and is usually a matter of trying the most appropriate remedies until one gives relief. If mild and the patient is young, a change of climate, occupation and habits may suffice. Those with a low basal metabolic rate should be given thyroid, and if a low glucose tolerance exists insulin should be tried. When no possible cause can be ascertained, the administration of prolan (anterior pituitary extract) should be tried, as it is reported to be highly satisfactory in many cases. The best results with this preparation are obtained in young women, and it is of doubtful value after the age of forty. The dosage is given as 200 rat units a day for 10 days, the treatment being repeated after a period of several weeks if necessary. Anterior pituitary-like hormones (obtained from urine), such as antuitrin-S, appear to be quite as effective in many cases, and the administration of ovarian, corpus luteum, and placental extracts appears to relieve some patients entirely. Curettage usually gives only temporary relief, but is often a valuable adjunct to organotherapy. Bimanual massage (purporting to rupture the cystic follicles) is reported to be efficacious in some cases, and x-ray over the ovary, spleen or pituitary is occasionally beneficial.

USE OF RADIUM

With severe hemorrhage, and as a last resort in all cases, radium may need to be employed. In adolescence great care should be taken, and the dosage should rarely be over 400 mg. hours. After the age of forty, if hemorrhage is marked, sufficient radium should be used to produce amenorrhea (1200 to 1800 mg. hours). Hysterectomy is rarely indicated except when radium treatment is not available.

In all cases the diet should be nourishing and easily digested, and should contain liver and iron if anemia is present. Marked anemia must be treated by transfusions before radium is employed, and if shock is present it must

be treated before any other procedure is instituted.

Carcinoma of the Cervix: This is a common cause of uterine bleeding, and is most frequently seen in multiparae past the age of thirty-five. The chief (early) symptom is a watery discharge from the uterus containing varying quantities of blood. The uterine bleeding is usually in the nature of a spotting, and is observed especially after some form of trauma (douche, coitus or vaginal examination). In late cases the discharge has a very foul odor, hemorrhage becomes much more profuse, and the signs and symptoms of malignancy are present. The diagnosis can be made by a vaginal examination in advanced cases, but in the early or suspected cases a biopsy is generally required.

If the diagnosis is made very early in the disease, and the tumor is Type 1 or 2, hysterectomy seems to be the most advisable form of treatment, but advanced cases, especially those of the rapidly growing types of tumor (types 3 and 4), are best treated with radium or x-rays (followed by a hysterectomy if a possibility of a cure exists). Usually only one application of radium is given (600 to 3000 mg. hours depending on the operator). In hopeless cases the action of the radium or x-rays is only palliative; nevertheless it is indicated to control the hemorrhage and to prolong life.

CARCINOMA OF UTERUS

Carcinoma of the Body of the Uterus: This fairly uncommon condition (especially in the negro) shows symptoms very similar to cervical malignancy, although it is reported to be more frequent in nulliparae and usually appears at a later age. It is slow growing and metastasizes comparatively late. Examination reveals only a watery uterine discharge, containing more or less blood, and some enlargement of the uterus—except in very early cases. A biopsy is necessary to make the diagnosis. Treatment is panhysterectomy if there are no metastases, but in cases that cannot stand the operation radium may be employed. Advanced cases should be treated with radium as a palliative measure to control hemorrhage.

Sarcoma of the Uterus: Sarcoma of the uterus usually occurs in the body, and its signs and symptoms are practically identical with those of carcinoma. Its greatest incidence is in women about fifty years old; a biopsy is necessary to establish the diagnosis. Treatment is complete hysterectomy, although the diagnosis is generally made too late for any hope of cure. Radium supposedly has no effect on the tumor, but may be useful to control the hemorrhage.

Malignant Ovarian Tumors: What has been said about ovarian tumors may be repeated here, except that symptoms of malignancy appear in advanced cases. The patients are usually past the age of forty. Treatment consists of complete removal of both ovaries, both tubes and the uterus.

UTERINE BLEEDING—METHODS OF TREATMENT

The most useful procedures for the treatment of uterine bleeding have been indicated in the discussion of the various types of conditions producing the hemorrhage. In all cases the removal of the cause is the background of the therapy, where the cause can be removed. The general health of the patient should be carefully watched. The diet should be adequate, nutritious, and contain an abundance of blood building materials (especially liver and iron); if intractable constipation is present it must be stopped by the use of mild laxatives. The patient should have plenty of fresh air, no overwork, and freedom from worry or mental excitement. If anemia is marked it should be treated with blood transfusions as often as necessary. Certain measures are so beneficial as to be considered in greater detail.

Hormone Therapy: In hypothyroidism (patients with a low basal metabolic rate) the administration of thyroid is usually successful in the control of uterine bleeding. However, the treatment usually must be kept up indefinitely. Uterine bleeding accompanying diabetes is often relieved by insulin. Prolan and similar endocrine products are reported to be the best drugs for the treatment of

functional uterine bleeding. Prolan is given in doses of 100 to 200 rat units a day for ten days, the treatment being repeated if necessary at intervals of two or three months. Extracts of the ovary, corpus luteum and placenta may be efficacious in certain cases, and should be given a trial if prolan and anterior pituitary-like preparations fail.

CONTRAINDICATIONS

Radium: One of the most valuable discoveries in recent years is the use of radium in the treatment of intractable uterine hemorrhage. No matter what the cause of the bleeding, radium is almost always effective in stopping it. In fact it has largely replaced surgery in this respect, except where an operation is necessary to remove the primary cause. However, certain contraindications exist to the use of radium, the most important ones being as follows:

1. Acute pelvic inflammatory disease.
2. Age. Radium should not be used when the patient is under the age of thirty-five, except as a last resort. Large doses produce complete sterility and amenorrhea, and smaller amounts may render the patient sterile for a fairly long period.
3. Pedunculated fibroids. After the use of radium, pedunculated fibroids often undergo necrosis due to their poor blood supply.
4. Large uterine tumors. Tumors larger than a four months' pregnancy often undergo a massive necrosis, due to the avascularity produced by the irradiation.
5. Marked anemia. Severe anemia should be treated by repeated transfusions before the use of radium.
6. Pregnancy. Neither radium nor x-rays should be used on a pregnant woman, because of the danger of abortion and of injury to the fetus.

Radium finds its greatest field of usefulness in the treatment of uterine bleeding in women past or near the menopause, especially when the hemorrhage is due to intramural fibroids, uterine carcinoma, and intractable functional bleeding. Except in malignancy and chronic pelvic inflammation, it is indicated before hysterectomy. In intramural fibroids, radium not only causes a cessation of the bleeding but also may produce a resolution of the neoplasm. In carcinoma of the cervix, it stops the hemorrhage for a long period of time, and if given early shows a large percentage of cures. In carcinoma of the fundus, surgery is usually indicated if possible, but if the patient is a poor risk radium may be employed; some believe that it is just as efficacious as surgery in producing a cure, and it is certainly effective in controlling hemorrhage. Certainly, it carries with it practically no mortality if properly applied.

Radium is also useful to stop hemorrhage after surgical removal of polyps, in the profuse menstruation with tuberculosis, in large boggy retroflexions, and almost any type of uterine bleeding that cannot be controlled by other means. In the young, small doses should be employed, large amounts being only used as a last resort before surgery.

The correct dosage varies with different authors. The accepted values are approximately as follows:

Adolescence	20 to 400 mg. hours
20 to 40 years	Under 400 mg. hours
40 to 45 years	400-600 mg. hours
45 or over	1200-1800 mg. hours

Most gynecologists advise only one dose of radium, the application not being repeated for at least six months. It should be given with the patient under an anesthetic, and when properly employed should have practically no mortality per se.

USE OF X-RAY

X-ray Therapy: Some believe that the x-rays may give as good results as radium in the majority of cases where radium is indicated, and many gynecologists use a combination of radium and x-ray in certain types of cases. Its contraindications are the same as for radium, and its field of usefulness chiefly confined to the treatment of intramural fibroids, menorrhagia at the menopause, and certain benign growths after surgery. Most authors agree that radium is more effective in malignancy, but it would seem

that x-rays have a less deleterious effect on the ovarian function.

Surgery: Since the advent of radium and the x-ray, the indications for surgery in the treatment of uterine bleeding have been greatly reduced. Surgery seems to be more desirable than radium in hemorrhage caused by ovarian tumors, hydatidiform moles, chorionepitheliomata, subserous and submucous fibroids, uterine polyps, very early cases of carcinoma of the cervix, carcinomata and sarcomata of the body of the uterus, malpositions of the uterus, and chronic pelvic inflammation. In these cases, surgery is used to remove the cause. It is rarely if ever used in treating the hemorrhage of late carcinoma of the uterus (any type) and functional uterine bleeding, radium having found to be more effective and having a much lower mortality rate.

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VALUE AND LIMITATIONS OF RADIATION THERAPY*

By HAROLD W. JACOX, M. D.
Pittsburgh, Pa.

THE very fact that radiation therapy has been recommended for so many different conditions has led to a justifiable skepticism among the practicing medical profession. And yet, this feeling is being gradually dispelled as more learn the efficacy and limitations of irradiation.

The factor common to all these pathologic processes is the destruction of certain cells in the path of the rays. The number of cells destroyed and the ability of others to recover are directly dependent upon the amount of irradiation administered. We are dealing with a very powerful therapeutic agent which requires intelligent and often cautious clinical judgment. On the other hand, this does not deter the well-trained radiotherapist from giving adequate dosage.

Since the biologic action of x-rays and radium is similar when comparable amounts are given, let us review briefly how normal and abnormal cells respond to human therapeutic doses:

Normal Tissue Classification
(In Order of Radiosensitivity)

1. Blood cells—lymphocytes.
2. Germinal cells.
3. Blood forming organs.
4. Endocrines—thymus, thyroid.
5. Dermal structures.
6. Viscera—lung, liver, pancreas, kidney.

*Presented before the Cabell County Medical Society, Huntington, W. Va., Nov. 11, 1937.

7. Connective tissue — muscle, bone, nerve.

Thus it will be seen that the skin stands about midway in the list and may serve as an excellent guide.

Tumor Classification
In Order of Radiosensitivity
(Ewing)

1. Lymphoma.
2. Embryonal tumors.
3. Cellular anaplastic tumors.
4. Basal cell carcinoma.
5. Adenoma and adenocarcinoma.
6. Desmoplastic tumors — squamous cell carcinoma, etc.
7. Fibroplastic tumors—sarcomas, etc.

In determining the most common conditions the radiotherapist treats, the material of our department was reviewed and divided into two main groups, (1) benign and (2) malignant conditions. The benign conditions were further divided into (a) skin diseases, (b) inflammatory conditions, (c) chronic granulomas, and (d) a miscellaneous group including largely the glands of internal secretion.

SKIN CONDITIONS

The most important factor in the treatment of skin conditions is the correct diagnosis. This implies close cooperation between the dermatologist and radiologist. Although there are seventy or eighty skin conditions in which irradiation is a valuable agent, those most frequently encountered and in which it is often the method of choice are:

1. Acne (in various forms).
2. Chronic dermatitis; sensitization, contact, etc.
3. Tineal infections, except the acute form.
4. Verruca vulgaris and plantaris.
5. Keloids.
6. Hemangiomas, especially the cavernous type.

Many physicians do not know the value of radiation therapy in various forms of acute and chronic inflammation. The beneficial action is probably due to the destruction of some of the infiltrating lymphocytes and leucocytes, thereby liberating bactericidal products faster than normally occurs. Thus irradiation is successful in the early stages before suppuration takes place, and hastens involution whether it be by absorption or requiring incision and drainage. The dosage is preferably small, there are no constitutional symptoms or injurious effects, and two or three treatments at forty-eight hour intervals are usually sufficient. The following common inflammatory conditions are arranged according to the greatest frequency:

1. Furunculosis, particularly axillary.
2. Carbunculosis.
3. Paronychia.
4. Cellulitis and erysipelas.
5. Acute simple adenitis.
6. Paranasal sinusitis, acute or chronic with drainage.
7. Bursitis, subacromial, subdeltoid, etc.
8. Otitis media, especially catarrhal.
9. Parotitis, frequently as postoperative complications.
10. Unresolved pneumonia.

REPEATED TREATMENTS

In chronic granulomas the clinical effect of irradiation is slow and repeated treatments at intervals are required. This is probably because of the varying degrees of inflammatory cell activity in proportion to the connective tissue proliferation, caseation and calcification which are not affected. I have never seen any injury following the proper administration of irradiation in these conditions which are less frequent than the above:

1. Tuberculous adenitis, particularly cervical.
2. Actinomycosis, usually cervicofacial type.
3. Pyogenic granuloma.
4. Giant cell tumor.
5. Blastomycosis, sporotrichosis, but rarely.

Conditions involving abnormal function of the glands of internal secretion are often benefited by radiation therapy. It is a fact that normal endocrine glands are not affected by even very large amounts of irradiation,

but a dysfunctioning gland may be very sensitive. The dosage required here is small when compared with cancer therapy, seldom causes radiation sickness and repetition is usually at intervals of several weeks. A satisfactory response is often obtained with two or three series of treatments, and if not, further röentgen therapy is abandoned. This is major radiologic work and requires close cooperation with the referring practitioner. The conditions commonly met with in this group are:

1. Uterine fibroids.
2. Benign uterine bleeding.
3. Hyperthyroidism.
4. Ovarian dysfunction and menopausal symptoms.
5. Enlarged thymus in infants.
6. Pituitary dysfunction.

In studying an unselected group of over seven hundred patients with malignant disease diagnosed within the last few years at The Western Pennsylvania Hospital, we found the following distribution:

1. Breast 20%
2. Uterine Cervix 18%
3. Skin and Lip 11%
4. Colon and Rectum 7%
5. Mouth: Tongue, Tonsil, Jaw 6%
6. Blood Dyscrasias 5%
7. Genitourinary 5%

Radiation therapy is the treatment of choice or a valuable aid to surgical measures for the arrest or palliation of most of these conditions.

CARCINOMA OF BREAST

Carcinoma of the female breast presents probably the most complex problem in the field of cancer therapy. My opinion is that a combination of irradiation and surgery is better than either method alone, and that thorough preoperative irradiation is more logical and probably more efficient than postoperative irradiation. Radiation therapy offers excellent palliation in relieving the pain of osseous metastases, but seldom is worth while when there is spread to the viscera.

Radiation therapy has superseded surgery for uterine cervical cancer wherever the proper facilities are provided. A combination of röentgen therapy followed by radium implantation and in some instances by a second pelvic series of high voltage röentgen rays seems to be the method of choice. Radiation therapy involves little risk of life, causes slight inconvenience and morbidity, and gives important palliative results in cases not cured.

SKIN CANCER

Skin (including lip) cancer is still a rather fatal disease, although either surgery or irradiation employed properly cures a very high proportion of favorable cases. The neighboring lymph nodes should either be removed or treated with intensive irradiation, when one is dealing with squamous cell carcinoma. Because of the great tendency to recurrence, radiation therapy is perhaps superior to the knife for basal cell carcinoma. Melanoblastoma is the most dangerous of skin cancers, is a radioresistant lesion, and on the whole the prognosis is very unfavorable with any form of treatment because of local recurrence and lymphatic metastases.

Surgery is the method of choice for lesions of the colon and rectum. Little more than palliation is all that can ordinarily be expected from radiation therapy of cancer of the rectum. A colostomy should precede irradiation in most cases. Rarely, a surprisingly good result is obtained.

In cancer about the mouth and throat, radiation therapy usually gives the better cosmetic and functional result. A recent advance consists in the application of the Coutard principle of prolonged, fractionated external irradiation with higher total dosage to these cases with improved results. The main problem is the treatment of the lymph nodes. I believe every case regardless of how the primary lesion is to be treated should have intensive external irradiation to the cervical nodes before anything else is done.

The entire group of lymphomatous tumors, leukemia, lymphosarcoma and Hodgkin's disease, although primarily radiosensitive, give unsatisfactory final results because of recurrences and systemic dissemination.

However, x-ray treatment adds tremendously to the comfort of the patient, and many of them live long enough to die of intercurrent illness.

The surgical attack is the method of choice for kidney, bladder and testicular tumors. When operation is inadvisable, irradiation may occasionally produce an unexpected favorable result. Some workers recently have felt that preoperative irradiation is highly satisfactory for cortical renal neoplasms, which are often radiosensitive, but seldom radiocurable. If an inoperable bladder tumor fails to react completely to röentgen rays in full dosage a satisfactory result is sometimes obtained by implantation of radium through a suprapubic route.

Modern radiotherapy of cancer requires the administration of adequate dosage which produces morbidity and some sequelae. These are to be expected and should have the same significance as those following surgical procedures. Although we do not know the cause of the peculiar radiation sickness which resembles sea sickness, we have found simple measures such as forcing fluids, catharsis and the use of small doses (1½ grains—.097 grams) of pentobarbital sodium (nembutal), to be most effective. For the skin reactions caused by intensive irradiation we advise the avoidance of irritation, cleansing the parts with a bland soap and water, and the frequent application of fresh olive or mineral oil.

Radiation therapy is still in its early stages of development and much improvement reasonably may be expected in the near future. Therefore, it is advisable that every practitioner become "radiation minded."

THE RELATIVE FREQUENCY OF IDIOPATHIC AND TOXIC FATAL HEPATITIS IN THE UNITED STATES

By DAVID ANDREW BRYCE, M. D.
Plainfield, N. J.

SINCE 1929, the author has had occasion to follow closely the literature of synthetic drug intoxication. It has been quite apparent that, despite a plethora of clinical "observations," "reviews," and "case reports," no author has troubled to assemble complete comparative statistical data on the relative frequencies alluded to in the title of this paper. The relation of alleged drug toxic deaths and the empiric probability of deaths from the particular pathological entity involved has not been studied. It is the purpose of this paper to make such a statistical comparison between idiopathic acute fatal hepatitis ("acute yellow atrophy of the liver") and the same condition when reported as due to phenylcinchoninic intoxication.

It is beyond the scope of the present paper to present an exhaustive review of the literature. Nevertheless, the appended Table A shows the reported cases of fatal phenylcinchoninic intoxication in the United States, and is reasonably complete. Table I presents data on acute fatal hepatitis in New York State, together with figures on population.

The data reviewed covers the years 1923 to 1935, inclusive. This table also shows annually, total deaths from all causes in the state. Table II shows, by years, the deaths alleged to phenylcinchoninates, the total estimated idiopathic acute hepatitis deaths in the entire country, the total general deaths throughout the United States from all causes, and the approximate population.

When this data has been simplified, condensed, and arranged in the above manner, certain conclusions follow directly therefrom. Some such arrangement of primary data is necessary before any conclusions as to the

TABLE A

Phenylcinchoninic Toxicity — United States Cases

Year	Authors	Cases	Fatal	Non-Fatal	Sex M	Sex F
1929	Anderson & Teter	1	1	0	0	1
1924	Barron	1	0	1	1	0
1931	Beaver & Robertson	5	5	0	2	3
1931	Bogan	1	1	0	0	1
1932	Berger & Schweid	2	2	0	1	1
1932	Bassler	9	2	7	0	0
1924	Boots & Miller	1	0	1	0	1
1934	Bloch & Rosenberg	8	5	3	4	4
1933	Carroll & Elliott	2	1	1	1	1
1925	Cabot & Cabot	1	1	0	1	0
1931	Cabot	1	1	0	0	1
1932	Comfort	5	0	5	5	0
1934	Conklin	5	1	4	2	3
1932	Davis	2	2	0	0	2
1932	Dolgoboh & Pumyea	1	1	0	0	1
1931	Elliott	1	1	0	0	1
1929	Frenzel	1	0	1	1	0
1930	Fink (also Short & Bauer)	2	0	2	2	0
1932	Gargill	3	0	3	1	2
1933	Grigg & Jacobson	1	1	0	0	1
1934	Hench	3	1	2	1	2
1933	Ingham	1	1	0	0	1
1933	Johnson	1	1	0	0	1
1934	J.A.M.A. 10-27-34	1	1	0	1	0
1934	Kramer	1	0	1	1	0
1931	Miller	1	0	1	0	1
1935	McCabe & Hart	1	0	1	0	1
1913	Phillips	5	0	5	2	3
1931	Parsons & Harding	4	4	0	0	4
1932	Parsons & Harding	6	6	0	4	2
1933	Permar & Goehring	2	2	0	1	1
1933	Perkel	1	1	0	0	1
1935	Peluse	1	1	0	0	1
1934	Ricketts	5	4	1	0	5
1934	Quick	3	0	3	0	3
1929	Reichle	2	2	0	0	2
1930	Rabinowitz	7	4	3	1	6
1931	Sherwood & Sherwood	1	0	1	1	0
1933	Short & Bauer	4	1	3	1	3
1928	Sutton	1	1	0	0	1
1924	Scully	1	0	1	1	0
1934	Sidel & Abrams	2	0	2	0	2
1931	Walker	2	2	0	1	1
1932	Weiss	3	0	3	0	0
1932	Weis	3	3	0	2	1
1933	Weir & Comfort	9	0	9	5	4
1935	Watson	1	1	0	1	0
		125	61	64	44	69

morbidity or mortality of a given pathological entity may be reached. A recent paper[1] exemplifies how an erroneous conclusion at worst, or at best an erroneous impression, may be given by inadequate tabulation of original data. The authors state: "In Table 5 the effect of neocinchophen is shown." Table 5 merely tabulates some references and effects following neocinchophen administration. Proceeding, they say, "It has been thought by many that neocinchophen, because of its lessened solubility, is not toxic. These seven patients, however, are reported to have taken neocinchophen only and yet five of them died—a mortality rate of 71.4 per cent." This is an unjustifiable method of figuring any criterion of mortality. Even the most casual inspection of such standard texts as the U. S. Statistical Abstract, or the New York State Vital Statistics Review, will show that "mortality rate" is always figured on the basis of some extensive sample, usually population. Such mortality rates are usually based upon the rate per 1,000 of population,

TABLE I

The relation of idiopathic acute hepatitis deaths, total deaths from all causes, and population in New York State.

Year	Idiopathic Acute Hepatitis Deaths*	Total Deaths From All Causes (in thousands)	General Population (in millions)
1923	36	141.0	11.17
1924	51	139.6	11.39
1925	70	142.4	11.62
1926	72	151.4	11.82
1927	66	141.0	12.03
1928	83	151.5	12.23
1929	65	154.0	12.43
1930	59	147.3	12.64
1931	71	149.2	12.85
1932	67	147.6	13.06
1933	72	148.2	13.27
1934	59	149.1	13.48
1935	50	150.0 (est.)	13.68 (est.)
Totals	821	1912.3	161.67
Arithmetic Means	63.1	147.3	12.43

*Furnished through the courtesy of Dr. Joseph V. DePorte, New York State Department of Health, Albany, New York.

although they are occasionally based upon rate per 100,000 of population, and they involve only very simple problems in empiric probability. What the authors really meant was that of seven individuals ill of a very lethal disease, five, or about 71 per cent, died —a fact previously known approximately. Assuming the figures quoted by the author to have occurred in one year, which they did not, and the population in the United States and Canada in that year to have been approximately 140,000,000, the mortality rate for neocinchophen intoxication would have been 5:140,000 per thousand, or approximately 0.00003 deaths per thousand of population. Were this figure reduced to a percentage basis, it would, of course, become even more microscopic.

It can readily be seen from Table I that deaths from idiopathic acute hepatitis, that is, acute yellow atrophy of the liver from any cause, are relatively infrequent, but run somewhere around 63 per annum, compared to mean annual total deaths from all causes of about 147,000. Strictly speaking, then, the "mortality rate" per thousand of population for the State of New York is about 1:198 per annum; or, the empiric probability that any given death will be a death from idiopathic acute yellow atrophy from any cause, is about 1:2200. These figures have more meaning when expressed as we have them here rather than reducing them to the microscopic size of decimal figures, or the ultramicroscopic size of percentage figures.

TABLE II

The relation of alleged toxic deaths from phenylcinchoninates, idiopathic acute hepatitis deaths, total general deaths, and total population in the United States.

Year	Toxic Deaths	Total Idiopathic Deaths (estimated)*	Total General Deaths (in thousands)	U. S. Population (In millions) (approximately)
1923	0	360	1193	111.5
1924	0	510	1174	113.2
1925	0	700	1219	114.9
1926	0	720	1286	116.5
1927	0	660	1237	118.2
1928	1	830	1379	119.9
1929	3	650	1386	121.5
1930	4	590	1343	123.2
1931	14	710	1323	124.1
1932	16	670	1308	124.8
1933	8	720	1342	125.7
1934	12	590	1386 (est.)	126.6 (est.)
1935	2	500	1400 (est.)	127.5 (est.)
Totals	61	8210	16976	1567.6
Arithmetic Means.	4.7	631	1306	120.6

*Estimated by multiplying the rate known to be correct for New York State by ten, the approximately constant relationship between New York State population and United States population.

DEATHS PER ANNUM

Table II attempts to set up much the same data, based upon standard figures for New York State, for the United States. This is the only method for arriving at an estimate of figures in the United States since there are no accurate statistics available of deaths from acute yellow atrophy taking the country as a whole. Approximately the same relationship between acute yellow atrophy deaths, general deaths, and the population exists obviously in this table, for the United States as a whole, as in New York State. But in this table we are able to show that the mean reported deaths per annum alleged to phenylcinchoninates is approximately 4.7; compared with annual deaths from idiopathic acute hepatitis from all causes of about 631 for the United States as a whole; and compared with an empiric probability that any one death in the United States will be a death following ingestion of a phenylcinchoninate of 1:280,000 in round numbers.

Summary: (1) The frequency of idiopathic acute fatal hepatitis in the United States is probably, and that in New York State is certainly, very low. Approximately one fatality in each 2200 reported deaths from all causes is due to idiopathic acute fatal hepatitis.

(2) The frequency of fatal acute hepatitis following ingestion of phenylcinchoninates, in the United States, is extremely low. Approximately one fatality in each 280,000

deaths from all causes being attributable to this cause.

(3) Idiopathic acute hepatitis has a definite mortality rate in New York State, and presumably in the United States, which is about 0.005 deaths per thousand of population. Only a minute portion, about 0.74 per cent, of this mortality can, in the period 1923 to 1935 inclusive, be attributed statistically to phenylcinchoninic intoxication.

(4) The term "mortality rate" has a definite and precise meaning, and the term should not be used when this meaning is not made clear.

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A METHOD FOR CLOSURE OF A FRIABLE OR FRAIL PERITONEUM

By HU C. MYERS, M. D.
Philippi, W. Va.

THE difficulties attending the closure of a friable or frail peritoneum are well known. Secure suture by any of the various procedures which have been advocated is often found difficult or impossible. Especially is this true if accessory factors are present such as incomplete muscular relaxation, or if there is a disproportion between the capacity of the abdominal cavity and the volume of the contained viscera. The ingenuity and patience of the surgeon may be taxed to the limit as he struggles to unite this inner layer of the abdominal wall, and he may be tempted or forced to use a closure which is certain to result in a weak scar.

The solutions previously advanced for this vexing problem may be divided into two groups: (1) Those which attempt to reinforce the peritoneum during suture. (2) Those which unite all the layers of the abdominal wall *en masse*.

The common procedure in group one is that of including some of the rectus muscle in each stitch. If the abdominal wall is not too tense, this simple method usually proves satisfactory; but when there is a tendency to eventration of the viscera, the peritoneum often tears in spite of the reinforcement offered by the free muscle edge. The inclusion of a few fibers of the split rectus muscle in the peritoneal suture lends very little strength to the stitch, and the wound may appear to be closed, when actually the peritoneum has separated beneath the muscle in large gaps, leaving a raw surface for the formation of adhesions and a possible site for incisional hernia.

A figure-of-eight suture devised by Tierny[2] of France uses the rectus edges to take tension off the peritoneum by passing the suture through the peritoneum on one side, then deep through the muscle and peritoneum on the opposite side. There is little practical benefit to this complicated suture unless the peritoneum is intimately adherent to a strong rectus muscle.

The union of all the layers of the abdominal wall with interrupted through-and-through sutures of a non-absorbable material such as silk, silkworm gut, or silver wire has occasionally been resorted to in the presence of an easily lacerated peritoneum. This type of closure represents group two, and while it may be desirable for wounds in which delayed healing is to be expected as in cachexia, carcinoma, gastric operations, or in patients with a cough, yet mass approximation cannot be considered as accurate as when each individual layer is carefully sutured. A wound thus closed can heal only by granulation, which is followed by fibrous tissue of relatively poor strength. The subsequent formation of a hernia in the scar is thereby favored.

Kirschner's[3] method of passing long silk sutures through all the layers of one edge of

the wound with the exception of the skin, and tying them to sutures similarly placed on the opposite side is a modification of the through-and-through method. It is rapid and may be used in emergencies where immediate closure is imperative.

A review of the literature failed to reveal mention of any attempt at reinforcing the edge of peritoneum to be sutured prior to

Fig. 1. The peritoneum is first sutured to the muscle on each side.

attempted closure. In March, 1937, a procedure to accomplish this was planned and about a month later the technique was effectively used to close an incision during an operation for perforated gastric ulcer. The peritoneum with the accompanying transversalis fascia had been united with much difficulty for about four centimeters when it became apparent that it was impossible to close it further by the usual method, due to the friability of the peritoneum and fascia. Inclusion of muscle also failed to keep the sutures from cutting through. The suture was therefore tied, and before any attempt was made to close more of the wound, the peritoneum and transversalis fascia were sutured to the overlying muscle with a continuous catgut stitch on each side. The edges thus formed proved stable enough to hold deeply placed approximating sutures securely, and the reinforced peritoneum-muscle margins were closed snugly with a No. 1 chromic catgut continuous suture. The remainder of the wound was then closed layer by layer using silkworm gut tension sutures and black silk for the skin. Eight days after the operation the wound broke down at its upper end and drained profusely for a few hours. Thereafter, there was very little drainage and the patient recovered without further mishap. It was noteworthy to find that the portion of the wound which was sutured by the new technique held securely, while the part sutured by the conventional method broke down.

Fig. 2. The reinforced muscle-peritoneum edges are united by a deeply placed continuous suture.

Since that time the same procedure has been used in six other cases with uniformly good results. It has been used only where it was impossible to suture the wound securely

by simple layer closure. Cases in which this technique has been used include appendectomy, hysterectomy, and cholecystectomy. It was used successfully in a case of gangrenous appendicitis with localized peritonitis, the remaining layers being closed *en masse* with silkworm gut tied over buttons.

The details of the technique are as follows: Efforts at normal closure are first abandoned, and the suture tied if any of the stitches are holding, otherwise, the previously placed catgut is removed. Starting on the right side, the abdominal wall is elevated by two sharp hooks and the peritoneum is sutured to the split margin of the rectus muscle on the same side. The suture is best done with plain catgut No. 1 or 2, using a continuous stitch. The catgut should not be tight enough to cause

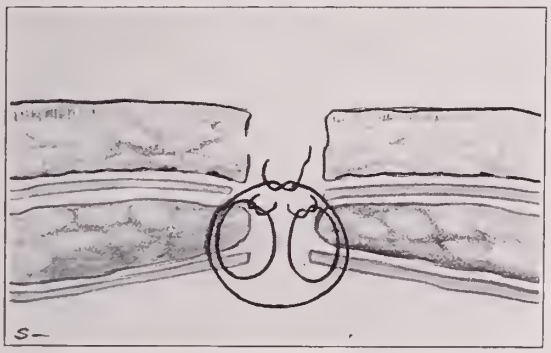

Fig. 3. Diagramatic cross section of reinforcing and approximating sutures.

strangulation of the muscle, and the stitches should be from one-half to one centimeter apart. At the lower angle of the wound the suture may be tied or locked and continued up on the opposite side. After both sides of the incision have been thus dealt with, it will be found that the edges of muscle-peritoneum which have been formed have sufficient stability for holding stitches even in the most difficult cases. The edges are then approximated by a continuous suture which may be of plain or chromic catgut, depending on the location of the wound and the preference of the surgeon. The sutures uniting the previously reinforced edges should be deep enough to include the reinfrocing catgut. The remainder of the closure is completed by uniting the fascia, subcutaneous tissue, and skin in separate layers; and tension sutures are used if desired.

This procedure has been applied to muscle-splitting incisions only, but it is entirely possible that modifications of the technique may be worked out for other difficult closures.

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IMMUNITY TO DISEASE

Immunity to disease is of two kinds: active and passive, Dr. Ralph M. Sussman declares in his article "The Lilliputian Lance," which appears in the January issue of *Hygeia*.

Active immuntiy is that immunity which is present when the body is able to resist its attacker by mustering its own forces. This is generally a permanent immunity. Passive immunity, on the other hand, is an evanescent defense which the body borrows to tide it over a difficult period.

Because of the relatively permanent nature of active immunity, physicians attempt to confer this type of immunity whenever possible. There are, at present, methods for producing immunity to smallpox, diphtheria, lockjaw, whooping cough, scarlet fever and typhoid; but only the inoculation against diphtheria and smallpox have received complete approval. The others do not have a 100 per cent successful incidence of immunity.

But by the timely use of many serums now available a light or modified case of a disease may be had which will confer a permanent immunity. This is of course preferable to the passive form conferred necessarily when the child has been exposed. That immunity lasts only a short while but becomes immediately effective, while the active form is produced only on contraction and cure of the disease.

The centuries have been kind to the child of today, the author believes, for he may now be shielded from a host of maladies which took the lives of the brothers and sisters of his forebears. Diphtheria and smallpox should properly be ailments which history records but which doctors do not see.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

"There is probably no disease around which so many misleading statements have been made as about tuberculosis," says Dr. Bernard Hudson who has spent many years in the Alpine resorts of Switzerland. In an article in the British Journal of Tuberculosis, October, 1937, he quotes a number of these sayings and exposes their fallacies. Though these questions deal largely with Switzerland and its resorts, they are pertinent and of interest to physicians everywhere in the United States. The article, somewhat abridged, follows:

False Proverbs About Tuberculosis: "The blood comes from the back of the throat." I could not say how many times patients have mentioned to me that they have been told this, after an attack of hemoptysis. As an early symptom of tuberculosis, this is a most valuable warning sign. It should bring to light the nature of the trouble from which the patient is suffering. By far the most common cause of blood spitting is pulmonary tuberculosis, and however slight it may be, this disease should always be considered the cause—unless it can be proved to be something else.

"*You should be cured in the place where you will have to live.*" It is very hard to understand a sensible person making such a statement. Surely the patient should be placed in those circumstances where healing can best take place. By healing is meant the formation of fibrous tissue, and the shutting off of the diseased areas of the lung, by the contraction and cicatrization thus obtained. It is difficult to fathom why a lung cicatrized in one part of the world should be likely to break down when the patient returns to another. Frequently, patients who come to Switzerland make very rapid apparent recovery. The cough and sputum disappear, the weight goes up, and the tired languid feelings are replaced by those of well-being and fitness. It is difficult for such people to realize that their cure is not completed, and they often return to England after a few months, to begin work, only to break down again as they are not yet sufficiently stable in health for normal life. A year or two, instead of a month or two, might have made permanent cures of them.

"*You can be cured just as well on a balcony at home as in Switzerland.*" The futility of this remark is very obvious when one considers that it is made to people living in large industrial towns as well as in country places. The smoke-laden air of towns with its dust and micro-organisms, can hardly be compared with the pure, thin, invigorating air of the Alps, yet I have heard this statement from many patients to whom it has been told, even so recently as this year.

"*You are not ill enough to go to Switzerland.*" Leaving Switzerland out of the question altogether, it is in the early case, where the lesion is still small and localized, and the patient's health and resistance are good, that the most energetic measures should be taken. The patient should be clearly informed regarding his disease, and told that his best chance of getting completely cured is to spend a long time, if it can possibly be managed, over his treatment. Being told that he is not ill enough to do this only serves to give him a false sense of security, and may lead to much disappointment and ultimate loss of the chance of real recovery.

"*You must not go to an altitude if you are spitting blood.*" There is some foundation for the popular idea that a mountain climate is not suitable for cases in which hemorrhage occurs. It is undoubtedly true that patients such as elderly people with high blood pressure, who are chronic fibrotic cases with cavitation, will probably not do well if they are inclined to hemorrhage. For the early, active stages, however, the mountain climate is not contraindicated at all. In such types, blood-spitting is simply an indication of activity of the disease, and when this is arrested, the hemoptysis stops.

"*You must not go to an altitude as you have a weak heart.*" This saying, as in the case of the patient who is spitting blood, has some truth in it. I have met patients who have been told that they should not go above, say, two or three thousand feet, but who, in spite of this, have done so in fear and trembling, and have been amazed to find that they have become stronger, and better in every way, in a short time. If, however, there is organic heart trouble, especially if poorly compensated, an altitude of over five thousand feet should not be attempted. In those types of cardiac weakness due to general debility, convalescence from disease, and flabbiness of the heart muscle—all parts of the patient's feeble general condition—there is no contraindication to the mountains, and such cases usually do very well.

"*You ought to go and sit about in the sun.*" Persons afflicted with pulmonary tuberculosis are,

even now, sometimes told to go to some sunny part of the world, and to sit about, or lie about in the sun, and "they will soon be all right again." It cannot be too strongly emphasized that indiscriminate and uncontrolled use of sunbathing in pulmonary tuberculosis is very dangerous, and should as a rule be prohibited. If applied in the wrong manner and to the wrong type of case, sun-bathing may easily set up flaming activity in a lung where the disease was perhaps latent or only smouldering, and would have settled down under ordinary treatment. Whilst very beneficial in cases of surgical tuberculosis, it is only in special cases of pulmonary tuberculosis that sun treatment should be advised, and even then it should be carefully watched and controlled.

Many of the above statements which one hears so often, are misleading, and in some cases really dangerous. Some of them lull the patient into a sense of false security, whilst others definitely deter him from taking those measures which he feels himself would be best. In any case they are mostly sayings which should be exploded.

Common Sayings Often Heard in Connection with Pulmonary Tuberculosis, Bernard Hudson, M.D., M.R.C.P., British Journal of Tuberculosis, Vol. XXXI, No. 4, October, 1937.

Use and Abuse of Sun Bathing: In the November "Tubercle" Hudson repeats his warning against the indiscriminate use of sun bathing. Heliotherapy is of great value in the treatment of cases of tuberculosis localized in bones, joints, glands and serous membranes and especially in young people who react well. But exposure to the sun should be strictly avoided where the tuberculosis is of the scattered type, especially if the patient shows a liability to fever, or to a tendency, on exertion, to autoinoculation. "The uncontrolled and ignorant use of sun-bathing amongst holiday-makers," he says, "has, without doubt, brought to light many a case of latent, quiescent tuberculosis of the lungs, which might otherwise never have been suspected." His summary is as follows:

1. In the sun we have a very powerful means of treating certain affections, especially beneficial to cases of surgical localized tuberculosis, and certain other chronic surgical conditions, not necessarily tuberculous.

2. Patients with pulmonary tuberculosis should never be allowed to sun bathe, as this is definitely dangerous. But sun-bathing may be prescribed: (1) when tuberculosis approximates to the surgical type, being quiet and localized; and (2) in chronic pleurisy.

3. Indiscriminate sun-bathing can certainly light up an unsuspected, latent pulmonary focus.

4. Sun-treatment consists in the gradual exposure of the body to the light, not the heat, of the sun, and sun-bathing does not mean getting baked on a stuffy enclosed balcony. And patients should be surrounded by a proper circulation of free air.

5. Sun-treatment should always be supervised and controlled by a medical practitioner.

Sun-Bathing in Tuberculosis, Its Use and Abuse, Bernard Hudson, M.D., M.R.C.P., Tubercle, Vol. XIX, No. 2, November, 1937.

MORNING FATIGUE

If one is fatigued at the beginning of the day, the cold germs will have more than a 50 per cent chance of getting the upper hand, Dr. Lowell C. Wormley discloses in his article entitled "The Common Cold," which appears in the January issue of *Hygeia.*

It therefore behooves one to get enough rest each night and keep one's general physical condition above par. Eight hours of sleep for the adult and ten hours of sleep for the child every night is a fool-proof practice if proper rest is to be obtained.

Next to be considered in keeping the general physical condition good are the type and amount of food eaten. Do not overeat; but do eat of a varied diet containing milk, eggs, fruit juices and green vegetables. Drink at least a quart and a half of water daily. Wear clothes suitable to the season. Undue exposure to the elements is a sure way to catch a cold, but try to maintain a moderate amount of outdoor exercise.

Furthermore, stay away from persons with colds. Keep clean inside and out. Have diseased tonsils, adenoids and bad teeth removed. Avoid carelessly washed drinking and eating utensils. They should be boiled before using.

If, despite precautions, a cold in contracted, start treating it at the first signal of its approach. Rest in bed, if the cold is severe and accompanied by body pains and weakness. If it is slight, stay in the house. Remember that rest is the first essential in the treatment of a cold. Drink plenty of cold water, and eat lightly of simple, wholesome food. Before retiring, drink a hot lemonade, take a hot bath and put an extra blanket on the bed. This will help to "sweat out" the cold.

President's Page

The advent of a new year arouses varied mental and emotional reactions. To the farmer it is a time for planning the coming season's crops, spring plowing, cleaning the fence rows, how to improve his livestock. All of these bucolic pleasures are, alas, denied the doctor to whom illness, suffering, casualty, death, unlimited by time or season, come without planning. In the weary moments between professional duties, ghost-like memories of income tax returns flit before his mind making him ever conscious of the approaching Ides of March. So for the rank and file of us. Happily there are exceptions of whom a notable example is our good friend Jim McClung. From farmer boy to eminent physician, through the joys of a successful political career, he has finally attained the enviable goal of agriculturist, gentleman farmer, for whom March 15th can have no terror. Our congratulations.

Collectively, however, there are things for us to do both pleasant and important. Although this letter will appear after the election of officers in the county societies, it is not too late to call attention to the importance of capable, interested, enthusiastic delegates to the State meeting in July. Observation in past years has convinced me that the deliberations and activities of the House of Delegates often leave much to be desired. Matters of importance are often proposed with which the delegates are totally unacquainted. To my mind no office in the county society, with the exception of the secretary, is more important than the delegates who collectively at the annual session determine the Association's policies. Too often their selection is made without due consideration of fitness; often they do not attend the annual meeting, and if so, frequently absent themselves from the meetings of the House of Delegates. This neglect of an important duty is largely responsible for the often made accusation that the affairs of the Association are dominated by politics. Another example of the organized minority.

Apropos is a suggestion made at the last meeting of the Council and properly referred to the Committee on Constitution and By-Laws. Following up this suggestion, the writer hopes this Committee may see fit to present at the next annual session an amendment to the By-Laws, providing that delegates be elected for a term of two years, half of each Society's quota being elected annually; thus conforming to the practice of the A. M. A. The advantages are easily apparent. Finally it would seem quite desirable for each delegate to be familiar with the Association's Constitution and By-Laws which have recently been reprinted with revisions to date, and are obtainable from your county secretary or the executive secretary.

President.

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COUNTY SURVEYS

One of the most forward moves of organized medicine during the present decade was inaugurated at the January meeting of the Board of Trustees of the American Medical Association in the form of a resolution recommending that all state and county medical societies assume community leadership in directing surveys of medical needs in their respective localities. The resolution recognizes the principle that the means of supplying medical service differ in various communities and that community surveys will provide the only working basis upon which needed medical service can be rendered.

The resolution directs "That the American Medical Association stimulate the state and county medical societies to assume leadership, securing coöperation of state and local health agencies, hospital authorities, the dental, nursing and correlated professions, welfare agencies and community chests in determining for each county in the United States the prevailing need for medical and preventive medical service where such may be insufficient or unavailable; and that such state and county medical societies develop for each county the preferable procedure for supplying these several needs, utilizing to the fullest extent medical and health agencies now available, in accordance with the established policies of the American Medical Association."

Here is an opportunity for constructive and far-reaching work on the part of our own component county medical societies. Unquestionably there is an insufficiency of medical service in many communities. Where do these insufficiencies exist? What remedies can be offered to correct them? These are questions of interest to all people, and the medical profession in each section can render an outstanding community service by assuming the leadership in this important work. If such surveys are directed by the medical profession, we know they will be properly carried out and that practical solutions will result.

The headquarters office of the West Virginia State Medical Association stands ready and willing to assist any and all of our county medical organizations in carrying on these surveys. However, we wish first to extend a word of caution against hasty action. County society officers who wish to proceed with local and sectional surveys should first be sure of their ground. They should utilize the very best talent in their societies to make up their survey committees. These committee members should be men who are experienced in dealing with laymen and who have had some training in conference room diplomacy. Careful study of the problem at hand, with due consideration of anticipated details, should be most important.

We urge our county medical societies to give careful study to the A. M. A. recommendation, to discuss this matter thoroughly in open meeting and to lay the groundwork now for early action.

GROUND HOG DAY

When this department was a youngster in grammar school we had a special recess in our brain for taboos. Otherwise we never would have been able to remember them all. In those days the young blades and their fair maidens probably got just as "hot" as they do today but the process went by a different title, and that title was not "necking." In those days, old ladies didn't get "ants in their pants." Sex was a word to shudder at, and as for dainty underthings . . . perish the thought, you cad.

Things have changed. The old pleasantries of Ground Hog Day have been supplanted with all night scavenger hunts for the woodchuck's pelt. We have reached an age of enlightened tolerance, and we now find our 1938 Ground Hog Day dedicated by the American Social Hygiene Association as a time for dragging an early-century bugaboo out into the sunlight for a nation-wide public appearance. Our next Ground Hog Day on February second will be officially designated as "Social Hygiene Day," at which time the old monster "Venereal Disease" will be dragged from its lair and flailed with the sunbeams of public opinion.

We don't for a minute think that the ground hog has outlived his period of usefulness, but still we admire the perspicacity of the A. S. H. A. for utilizing Ground Hog Day for the promotion of a much-needed national reform. We urge our members to participate, and express the hope that February second will be a dreary day . . . that Social Hygiene will not be scared by its own shadow.

DIRECT MAIL INSURANCE

Just about this time each year we issue our annual warning to Association members to beware of out-of-state and mail order insurance companies. Physicians names are easily available to the public and therefore the medical profession contributes rather heavily to the "sucker lists" of mail order concerns. Therefore we feel that our annual word of caution may accomplish a useful purpose.

Most of the insurance companies that solicit by direct mail are not licensed to transact business in West Virginia. Usually they are not licensed because they are not able to comply with our insurance requirements. If they are not licensed in West Virginia, they can't be sued in West Virginia. Such companies may pay their claims promptly, but if they don't there is very little that can be done about it.

Doctors who are solicited by mail order insurance companies should do either one of two things. First, and best, throw the correspondence in the waste basket and forget it. Second, but still safe, write the Association headquarters at Charleston for an insurance report on the company.

Mail order rackets are not confined to insurance concerns. They are also dressed up in the guise of business-getting directories, and collection panaceas. So while we are about the job, we'll just extend our warning to cover the entire general field of direct mail solicitation.

THAT 430 COMMITTEE

Much has been written about the November proclamation of the "Committee of Physicians", that group of 430 doctors who are willing to place the practice of medicine in government hands. So that there might be no misunderstanding of the position of the American Medical Association, the Board of Trustees recently authorized the following statement, which we publish in full for the benefit of our entire Association membership:

Following the publication of the report of the American Foundation Studies in Government, a small group of physicians, assembled in New York, developed certain principles and proposals which have since been circulated by a self-appointed Committee of Physicians among the medical profession of the United States, with a view to obtaining signatures in their support. During a period of approximately six months, some 430 medical men have apparently permitted the use of their names. Early in November the self-appointed group of physicians released to the press for Sunday, November 7, a statement of principles and proposals to which the names of the 430 signers were affixed. The newspapers generally heralded this action as a revolt against the American Medical Association, in a great majority of the cases indicating that there was a revolt in behalf of "state medi-

cine." The publication of this manifesto and the attached signatures has been heralded with glee by many of those who have been opposing the American Medical Association in behalf of cooperative practice, sickness insurance, and various fundamental changes in the nature of the practice of medicine. Within the last week another series of proposals has come from another self-appointed group requesting signatures of physicians. This series of proposals includes the suggestion for enabling legislation for sickness insurance.

The American Medical Association is an organization of physicians along strictly democratic lines. Representatives of county medical societies send delegates to state medical societies and these, in turn, send their delegates to the House of Delegates of the American Medical Association. It is possible for any physician, through his delegate, to obtain consideration of any proposal which he may wish to bring to the attention of the House of Delegates. At the Atlantic City session the delegates from New York state presented these principles and proposals, slightly modified, as an action of the House of Delegates of the New York State Medical Society. They were carried before a reference committee and, in several sessions of that reference committee, considerable numbers of physicians presented arguments for and against their adoption. The House of Delegates, however, after thorough consideration of the report of the reference committee, and with full cognizance of the method of development of these principles and proposals, and of the considerations which were involved in their passage by the House of Delegates of the New York State Medical Society, did not accept them. The House of Delegates did, however, point out the willingness of the medical profession to do its utmost today, as in the past, to provide adequate medical service for all those unable to pay either in whole or in part.

Why, then, any necessity for the circulation of petitions presenting proposals for fundamental changes in the nature of development, distribution and payment for medical service? Is there a well designed plan to impress the executive and legislative branches of our government with the view that the American medical profession is disorganized, distrustful of its leaders, undemocratic in its action and opposed to the best interests of the people? Who may profit from such evidence of disorganization? Is there any evidence that the self-appointed Committee of Physicians and the 430 physicians who have affixed their names to these principles and proposals are any better able to represent the opinion of the American medical profession than the democratically chosen House of Delegates of the American Medical Association—one of the most truly representative bodies existing in any type of organized activity in this country today?

The House of Delegates has given its mandate to the Board of Trustees, to the officers and to the employees of the Association. That mandate opposes the principles and proposals emanating from the Committee of Physicians, and equally the new proposals. If the House of Delegates sees fit to depart from the principles now established, it will be the duty of the Board of Trustees, the officers and the employees of the American Medical Association to promote such new principles as the House of Delegates may establish. Until, however, the regularly chosen representatives of the 106,000 physicians who constitute the membership of the American Medical Association (now the largest membership in its history) determine, after due consideration, that some fundamental change or revolution in the nature of development, distribution and payment for medical service in the United States is necessary, physicians will do well to abide by the principles which the House of Delegates has established. They will at the same time deprecate any attempts inclined to lead the executive and legislative branches of our government, as well as the people of the United States, into the belief that the American medical profession is disorganized.

Members of the medical profession, locally and in the various states, are ready and willing to consider, with other agencies, ways and means of meeting the problems of providing medical service and diagnostic laboratory facilities for all requiring such services and not able to meet the full cost thereof. The American Medical Association has reaffirmed its willingness on receipt of direct request to cooperate with any governmental or other qualified agency and to make available the information, observations and results of investigation, together with any facilities of the Association. Thus far, no call has come from any governmental or other qualified agency, for the cooperation of the American Medical Association in studying the need of all or of any groups of the people for medical service, to determine to what extent any considerable proportion of our public are actually suffering from lack of medical care. The offer still stands as evidence of the willingness of the American Medical Association to aid in finding a solution to any or all of the problems in the field of medical care that now prevail.

WHAT ABOUT YOUR DUES

In order to avoid any possible misunderstanding about the payment of Association dues, we hasten to correct a growing opinion that the annual assessment is not payable until April first. The dues of each Association member become due with the beginning of each new year. They are payable on January first. On April first, all members who have not paid their dues are automatically suspended from membership and their names temporarily dropped from the Association records.

It is a little early to talk about suspended members. We have only a few of these delinquents each year, and they do not come into the picture until April Fool's Day. But for the sake of the record, we will point out that delinquent members may be reinstated between April 1 and December 31, upon payment of dues. After December 31 of each year, all delinquent members are automatically expelled, permanently dropped from the roster, and can only be reinstated upon petition to their respective county societies.

In other words, let's get this matter of dues settled and out of the way right now, thereby contributing to the happiness and well-being of each county secretary. If you have not already taken care of your dues, send your check to your county secretary *now*. If you make his life a happy one, he'll have more time and enthusiasm to work for the welfare of your society.

Obituary

The passing of Dr. S. J. Kell of Bluefield, W. Va., came as a distinct shock to his many friends on the morning of January 12. He succumbed to a heart attack after being ill only a few hours. He was 57 years of age.

Dr. Kell was born in Canton, Ohio, June 20, 1880. He received his early education at Concord College and later West Virginia University. He received his degree of medicine from the College of Physicians and Surgeons in 1907. He began practice at Welch in 1907, later moving to Bluefield. He was a member for many years of the Mercer County Medical Society, the State Medical Association and the American Medical Association. He is survived by his wife and eight children.

CONVENTION DATES

For the benefit of those who failed to see the original notice or who may have forgotten it, we announce again that the dates for the Seventy-first Annual Meeting of the Association at White Sulphur Springs will be July 11, 12 and 13, 1938. All sectional meetings will be held on Monday, July 11, and the general convention assemblies will be held on Tuesday and Wednesday, July 12 and 13.

Colds are contracted through the nose and throat, but healthy individuals have a natural barrier to the cold germs if they keep their general physical condition above par.—*Hygeia.*

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

West Virginia as a state is one of the few states in the Union which is carrying out the essential control features of the plan advocated by the Milk Supply Committee of the American Public Health Association. The objective of this plan was stated as follows:

This committee, composed of national experts on milk sanitation from Minnesota, Washington, D. C., New York, Pennsylvania and other states, stressed the necessity above all of a trained, capable, tactful group of milk sanitarians to carry on the state milk control program. Such a group is at work in West Virginia. The committee further said that: "The more educational work a state health department can do, the faster will be the progress in the milk improvement program." There must be a militant informed public opinion back of the local milk inspection if it is to be effective.

Many of the men now at work in West Virginia in full-time public health departments, either county, district or city, have graduated from the West Virginia University, Department of Dairying, where special training is given on milk sanitation and milk technology. Some of the men have taken special additional public health training under the auspices of the State Department of Health.

The State has adopted a set of sensible, practical rules for milk production and pasteurization. This set of standards was first adopted by the State Department of Health in 1927. In the succeeding ten years nearly every city and county agreed to use this same set of milk sanitation standards for its community. It is the same standard for producing safe milk as recommended by the Federal Departments of Agriculture and Public Health.

Now that West Virginia has a set of standards on milk quality and capable, trained men for getting safe milk supplies, let us see the necessity for milk control work and some of the accomplishments.

During the years 1934-1936, an analysis of 1529 cases of streptococcus infection, occurring in seven epidemics in New York State, indicated that in each case the epidemic was caused by raw milk. The source of contamination in six of the seven outbreaks was a cow suffering from acute mastitis caused by a hemolytic streptococcus of the type usually associated with human infection.

A serious typhoid outbreak was traced to raw milk in a West Virginia county during 1936, in which some twenty-six persons were involved, and in 1937, alert public health officials nipped another milk-borne typhoid outbreak in the bud.

Thus it is clear that we need the trained, capable milk inspectors on the job constantly to see that—

(1) The cows are free from such diseases as tuberculosis, mastitis and Bang's disease.

(2) A clean barn is provided for milking purposes.

(3) A milk house is at hand for washing utensils and cooling milk.

(4) Milk is kept cool—50° F. until delivery—and that bacteria count is kept below 50,000 per c.c.

(5) The milker is healthy.

(6) Milk coming to pasteurization plants is kept cool—that bacteria count does not rise over 200,000 before pasteurization.

(7) Pasteurization plants are operated in accordance with proper practice and meet the State Standards for cleanliness.

The practice which prevailed in the past in West Virginia of trying to make over dirty milk and secure a satisfactory clean product by filtering out the dirt and then heating it to kill the bacteria has been abandoned.

The state inspection staff of seven trained milk men, with headquarters in Charleston, Huntington, Parkersburg, Clarksburg, Wheeling and Martinsburg, supplemented by the local milk inspectors working in full-time county health departments, are closely watching the milk as it arrives at the plants and it must be clean, of low bacterial count, and of low temperature, before it is allowed to be pasteurized and labeled "Grade A" pasteurized milk.

The State Department of Health recommends pasteurization of milk because thereby an additional safeguard is placed on milk after every possible effort has been taken to produce it by clean methods, in clean barns, from cattle free from diseases, by clean milkers. When some of these links in the chain of cleanliness break down temporarily, pasteurization can come to the rescue. It is physically impossible for the inspector to watch all the cows for mastitis, for Bang's disease, and for tuberculosis, to check each day on the health of all milkers to detect such diseases as diphtheria, typhoid, scarlet fever and septic sore throat, and to see that all utensils, bottles and pails are thoroughly disinfected every time they are used for milking operations.

County Society News

CABELL COUNTY

Dr. Mont R. Reed, Professor of Surgery at the University of Cincinnati, addressed the Cabell Society at its January 13 meeting held in the Hotel Prichard, 8:15 p. m. The presence of this distinguished visitor occasioned a large attendance. Dr. Walter C. Swann, president, presided.

Dr. Reed's subject was "Wound Healing." Being an authority on the subject, the address was particularly interesting and instructive. It was followed by a general discussion.

A special meeting of the Cabell Society was held on the evening of January 15 at the Guyan Country Club, honoring Dr. J. H. J. Upham, Columbus, Ohio, president of the American Medical Association. There was a splendid attendance. Dr. Upham addressed the society on legislative and economic problems of the medical profession.

The guest list included Dr. Charles W. Waddell, Fairmont, president of the West Virginia State Medical Association.

During the Huntington visit, Dr. Upham spoke before the Rotary Club at noon on January 17, and before a public meeting in the high school auditorium the same evening. Mrs. Upham, who accompanied Dr. Upham to Huntington, was the honor guest at an afternoon Auxiliary tea at the home of Dr. and Mrs. James R. Bloss.

BOYD F. BROWN, *Secretary*.

HARRISON COUNTY

The Medical Society of Harrison County met on Thursday, January 6, Stonewall Jackson Hotel, Clarksburg. Dr. E. F. Wehner, newly elected president, presided. Thirty-one members were in attendance.

Dr. R. T. Humphries of Clarksburg delivered a paper on "Differential Diagnosis and Treatment of Acute Arthritis." This presentation was received with much interest and was generally discussed.

JAMES G. RALSTON, *Secretary*.

KANAWHA COUNTY

The annual installation of officers and dinner dance of the Kanawha Medical Society was held at the Kanawha Country Club, Charleston, on the evening of January 15 with approximately 150 members and guests in attendance. Dr. B. H. Swint is the new president of the society, Dr. Martin L. Bonar, vice president, and Dr. A. Spates Brady, secretary-treasurer.

Special guests of the society were the secretaries and presidents of the state's county medical societies who were in Charleston for the annual Secretaries' Conference. Dr. C. W. Waddell, Fairmont, president of the West Virginia State Medical Association, and Dr. R. G. Leland, Chicago, director of the Bureau of Medical Economics of the American Medical Association, were also present and both made brief extemporaneous talks.

A. SPATES BRADY, *Secretary*.

LOGAN COUNTY

The January meeting of the Logan County Medical Society was held on the twelfth at the Aracoma Hotel, Logan. Dr. D. T. Moore, newly elected president, presided. The scientific program was presented by two guest speakers from Charleston—Dr. A. A. Wilson and Dr. V. L. Peterson.

Dr. Wilson's paper was on the subject of "Head Injuries" and was illustrated by lantern slides. Dr. Peterson's topic was entitled "X-ray Findings of Lesions of the Stomach" and was also illustrated by lantern slides. Both papers were of a very practical nature and proved most interesting to the audience.

J. LESTER PATTERSON, *Secretary*.

MONONGALIA COUNTY

The monthly meeting of the Monongalia County Medical Society was held in the Marine Room of the Hotel Morgan, Morgantown, January 4, 1938 at six o'clock. A good attendance marked the occasion. Following dinner, the scientific presentation was made by Professor J. L. Hayman, Director of College of Pharmacy, West Virginia University. His subject was "Professional Relationship Between Physician and Pharmacist." This was an interesting topic and evoked a general discussion.

G. R. MAXWELL, *Secretary*.

OHIO COUNTY

The usual monthly scientific session of the Ohio County Medical Society was marked by the presence of Dr. J. H. J. Upham, president of the American Medical Association. The meeting was held in the Solarium of the Ohio Valley General Hospital on January 14, at 8:30 p. m.

Dr. Upham addressed the meeting on the subject "Heart Diseases in Middle Life." Prepared

discussions were offered by Dr. H. R. Sauder and Dr. R. J. Snider. A general discussion concluded the program.

The meeting was presided over by Dr. W. M. Sheppe, president.

W. C. D. McCuskey, *Secretary.*

PARKERSBURG ACADEMY

The Academy of Medicine of Parkersburg held its regular monthly meeting at the Camden Clark Hospital, Parkersburg, on the evening of January 6 with 35 members and guests in attendance. Dr. R. S. Widmeyer, president, presided.

Dr. Harvey G. Beck, Baltimore, was the guest speaker of the evening. He delivered a timely and exceedingly engrossing paper entitled, "Rôle of Carbon Monoxide in the Etiology of Myocardial Diseases," illustrated and demonstrated with apparatus and lantern slides.

Dr. Beck discussed the pathological physiology resulting from carbon monoxide anoxemia, pointing out the perverted physiology due to oxygen want, which leads secondarily to a disturbed physiology of the various tissues which in turn give rise to pathological changes. The importance of recognizing this clinical condition, which Dr. Beck believed is much more common than is ordinarily taught, was brought home to the Parkersburg physicians by a citation of many cases occurring in localities where natural, wet, unrefined gas is used for illuminating, cooking and heat. He showed a spot map representing Pike, West Virginia, and its environs, in which he had personally observed in conjunction with local physicians, many cases of chronic carbon monoxide anoxemia.

It was pointed out also that workers on toll bridges, tunnels, garages, and drivers of closed cars were more liable to this disease. The incidence of chronic poisoning or anoxemia is much higher during the winter months.

As evidence that the subject had created profound interest, a long discussion followed. Those taking part included Doctors B. O. Robinson, B. S. Parks, L. O. Rose, Welch England, J. M. Depue, Lattimer Jones, B. B. Nicholson, James L. Wade and S. D. H. Wise.

A special meeting of the Academy was held at the Camden Clark Hospital on the evening of January 18 with Dr. Widmeyer presiding. The Professional Relations Committee of the Society reported on the self-appointed Committee of Physicians, which was unanimously adopted. The report follows:

> "After examining the report of the Committee of Physicians, your Committee can see nothing in their proposals that will uplift the medical profession. We therefore recommend that we ignore their propaganda and pledge ourselves to remain steadfast to the principles of the American Medical Association."

The application of Dr. John Goebel of Parkersburg was presented for membership and he was elected to the Academy.

Dr. Welch England reported to the Academy on the December 16 Council meeting in Charleston and discussed the advisibility of electing Association delegates for a longer period than one year in order to obviate an entirely "green" membership at each yearly meeting.

The secretary made a report on the recent meeting of the County Medical Society Secretaries at Charleston and a copy of his report was filed with the Academy.

James L. Wade, *Secretary.*

POTOMAC VALLEY SOCIETY

The following officers were elected on November 5, 1937 to serve the Potomac Valley Medical Society during 1938:

President, V. L. Dyer, Petersburg; first vice president, J. B. Grove, Petersburg; second vice president, J. F. Easton, Romney; third vice president, O. V. Brooks, Moorefield; fourth vice president, Robert Bess, Piedmont; fifth vice president, O. S. Reynolds, Franklin; secretary-treasurer, E. A. Courrier, Keyser; board of censors, W. A. Flick, Keyser; R. W. Love, Moorefield, J. H. Wolverton, Piedmont.

Dr. W. F. McFarland of Keyser was elected to membership in the society.

E. A. Courrier, *Secretary.*

RALEIGH COUNTY

The regular meeting of the Raleigh County Medical Society was held December 16, 1937, at the Beckley Hotel. The meeting was devoted to the election of officers and other business matters. The following doctors were elected to fill the offices of the Society for 1938:

President, D. C. Ashton, Beckley; first vice president, R. P. Daniel, Pemberton; second vice president, Clark Kessel, Beckley; secretary-treasurer, L. M. Halloran, Beckley; board of censors,

K. M. Jarrell, R. G. Broaddus, E. S. Dupuy; delegates, K. M. Jarrell, Clark Kessel; alternates, B. B. Richmond, R. C. Mitchell.

Dr. Lyle B. Hart, Beckley, and Dr. Newman H. Newhouse, Mead, were accepted as new members of the Society.

The regular monthly meeting of the Raleigh County Medical Society was held at the Pleasant Inn, Beckley, on the evening of January 20 with 30 members in attendance. Dr. D. C. Ashton, president, presided. The scientific program was presented by Dr. George M. Lyon, Huntington, who gave an interesting talk on "Acute Respiratory Infections in Children."

Dr. T. R. Coleman, Mead, and Dr. C. C. Wilson, Besoco, were accepted as new members.

L. M. HALLORAN, *Secretary.*

INDUSTRIAL PHYSICIANS AND SURGEONS

The annual mid-winter meeting of the West Virginia Society of Industrial Physicians and Surgeons will be held at the Daniel Boone Hotel, Charleston, on Tuesday, February 8, 1938. The meeting will convene at two o'clock p. m.

The headliner for the February 8 meeting will be Dr. Henry H. Kessler, medical director of the Workmen's Compensation Commission of New Jersey. He will speak on "Some Problems in Rehabilitation of the Injured Employee" and his talk will be illustrated with a talking moving picture.

The afternoon session will be opened with a round-table discussion on "When to Put the Injured Employee Back to Work," led by Dr. Ray I. Frame of Sharples. Participating in this discussion will be Dr. Kessler and Dr. G. C. Schoolfield, medical director of the West Virginia Compensation Commission. Dr. Kessler's paper will then be presented and he will be followed by Dr. Paul Revercomb, Charleston, with a paper on "Fat Embolism Complicating Fracture of the Long Bones."

Dr. Kessler will be the guest speaker at the regular monthly meeting of the Kanawha Medical Society on the evening of February 8. On February 9, he will address a meeting in Charleston of the Compensation medical examiners.

All Association members connected with or interested in industrial work are invited to the meeting of the Industrial Physicians and Surgeons Society. The registration fee will be one dollar.

General News

LICENSE REQUIREMENTS

Three important changes in the regulations for medical licensure in West Virginia have recently been announced by the Public Health Council. For the benefit of JOURNAL readers, we give below the regulations for reciprocal relations with other states as revised on November 9, 1937. The revisions of November 9 are in italics:

1. Preliminary Education: At least two years of academic work of collegiate grade in a standard college of arts and sciences of equal rank with the College of Arts and Sciences of West Virginia University, *and for applicants graduating after July 1, 1937, a baccalaureate degree.*

2. Medical Education: Graduation from a Class A medical school as classified by the Council on Medical Education and Hospitals of the American Medical Association.

3. Internship: Twelve months' internship in a hospital approved for internship by the Council on Medical Education and Hospitals of the American Medical Association or in a hospital *fully accredited* by the American College of Surgeons. In the event applicant is a graduate of a school requiring more than one year of internship before the degree of M. D. is granted, applicant must have completed the full internship required by his school of graduation. (This qualification applies to all applicants graduating subsequent to July 1, 1931.)

4. Other Credentials: License by examination in the state from which the applicant is applying with a general average of not less than 80 per cent and no single grade lower than 65 per cent, and if possible, recommendation of local and state medical societies where he has been practicing.

5. Fee: Payment of a fee of $100.00 to the West Virginia Public Health Council. If license is not granted, this fee will be returned except in instances in which a temporary license has been issued. (Cashier's check or money order is preferred when sending in fee.)

6. Submission of Application: All applications must be in the office of the Secretary of the Public Health Council, State Department of Health, Charleston, one month before the date of the meeting at which licensure is sought. No application will be given consideration unless this regulation is complied with.

7. Personal Appearance: All applicants for reciprocity are required to appear before the Public Health Council in person at one of its regular meetings.

8. Ad Interim Permits: The State Health Commissioner is not authorized to issue temporary permits or ad interim licenses between sessions of the Council *but ad interim permits may be granted by majority vote of the Council in regular session to applicants who present credentials sufficient to entitle them to licensure at the succeeding meeting of the Council.*

9. Graduates of Foreign Schools: Effective January 1, 1937, graduates of foreign medical schools are required to submit proof with the application that they are licensed in the country of their graduation and that they have served at least one year's internship in an approved hospital as defined in Section 3 above, or that they have completed the fourth year of medicine at an American Class A medical college, as classified by the Council on Medical Education and Hospitals of the American Medical Association. (This regulation does not apply to graduates of Canadian or other medical schools which have been placed in the A classification by the Council on Medical Education and Hospitals of the American Medical Association.)

OBSTETRICAL CLINICS

Tentative arrangements are being made for three-day clinics to be held in Cleveland between the 1st and 17th of March by Dr. Arthur H. Bill of the Maternity Hospital, Dr. A. J. Skeel of St. Luke's Hospital and Dr. T. A. Jones of the Cleveland Clinic for members of the West Virginia Obstetrical and Gynecological Society or any other interested doctors in West Virginia. Any doctors who are interested and desire to attend these clinics can find out the exact dates they are to be held by getting in touch with Dr. E. J. Humphrey of Huntington. Dr. Humphrey will have the exact dates by the fifteenth of February and will notify those doctors who have already expressed interest.

PUBLIC HEALTH MEETING

The officers of the American Public Health Association announce that the 67th Annual Meeting will be held in Kansas City, Missouri, October 25-28, 1938.

Dr. Edwin Henry Schorer, director of the Kansas City Health Department, has been appointed chairman of the local committee. He will be assisted by a large group of city and state officials and community leaders.

A long list of affiliated organizations meet habitually with the American Public Health Association. They include:

The American Association of School Physicians, the Association of Women in Public Health, the Conference of State Laboratory Directors, the Conference of State Sanitary Engineers, the American Association of State Registration Executives, Delta Omega, the International Society of Medical Officers.

WRITTEN EXAMINATIONS

The American Board of Internal Medicine will hold its next written examination on Monday, February 14, 1938, in various centers of the United States and Canada.

The examination will consist of two sessions of three hours each with the morning session held at 9:00 o'clock a. m., and the afternoon session held at 2:00 o'clock p. m.

The candidates who are successful in this written examination will be eligible to take the practical examination which will be held in San Francisco the Friday and Saturday prior to the opening of the Annual Session of the American Medical Association in June, 1938.

SOCIAL HYGIENE DAY

National Social Hygiene Day, the second observance of which has been set for February 2, 1938 by the American Social Hygiene Association, marks the high point in the year round effort to gain popular interest and support for the activities of the health authorities and the medical profession in dealing with syphilis and gonorhea. Interested official and voluntary agencies concentrate their efforts at this time on giving the subject the widest possible publicity, by arranging for meetings of interested groups, press stories and comment, appropriate radio broadcasts, and the like.

The first National Hygiene Day, February 3, 1937, was an immediate success in accomplishing its purpose: it was marked by hundreds of meetings held throughout the country. More than a thousand newspaper clippings coming from all parts of the country testify to its uniformly favorable press.

"Stamp Out Syphilis—Enemy of Youth" is the slogan for the 1938 Social Hygiene Day meetings. Particular emphasis will be laid on the control of

syphilis among the twenty to thirty year age group, in which more than half of all new infections occur.

Suggestions for meetings and practical community programs may be obtained from the American Social Hygiene Association, 50 West 50th Street, New York City. The Association will be glad to supply interested persons and groups with materials, such as exhibits, films, and literature.

TUBERCULOSIS SCHOLARSHIPS

The Trudeau School of Tuberculosis at Saranac Lake has offered two scholarships for 1938, through the West Virginia Tuberculosis and Health Association. The scholarships are equivalent to $100 in cash. The course at the Trudeau school is four weeks in Saranac Lake, with an additional two weeks in New York if desired.

The dates for the 1938 school have not yet been fixed, but the course usually begins about the middle of May. Doctors who are interested in the scholarship should get in touch with Mr. George C. Rowell, executive secretary of the West Virginia Tuberculosis and Health Association, Charleston.

DR. WILKINSON APPOINTED

Dr. R. J. Wilkinson, Huntington, has been appointed a member of the Council of the Southern Medical Association from West Virginia for a regular Council term of five years, the appointment having been announced recently by the president, Dr. J. W. Jervey of Greenville, South Carolina. Dr. Wilkinson succeeds Dr. Jas. R. Bloss, Huntington, who, having served the constitutional limit, was not eligible for reappointment.

The services of Dr. Wilkinson on the Southern Medical Association Council will no doubt be of great advantage to that organization. For many years he has been an active and enthusiastic worker for scientific and economic medicine in West Virginia and is a member of the Association's Council.

A. M. A. HOTEL RESERVATIONS

Members should write at once if they contemplate attending the American Medical Association meeting in San Francisco this June and obtain their hotel reservations. See recent issues of the *Journal of the American Medical Association* giving list of San Francisco Hotels and rates. Send in your requests to Doctor Frederick C. Warnshuis, 450 Sutter Street, San Francisco, California.

TWENTY-FIVE YEARS AGO

(Taken from the February, 1913 Issue of the West Virginia Medical Journal)

STATE NEWS

Among those receiving licenses to practice medicine in West Virginia following the recent examinations given at Wheeling on November 11, 12 and 13, 1912 were: Dr. R. F. Farley, Holden; Dr. R. D. Roller, Jr., Eccles; Dr. H. E. Davis, Logan; Dr. E. M. Tanner, Bramwell; Dr. B. H. Swint, Charleston.

* * * * *

Dr. W. T. Booher, of Bethany, has established a sanitarium in that beautiful village, for the treatment of all chronic diseases. The doctor is an enterprising man and capable of making things go.

* * * * *

Dr. J. R. Collins has removed from Fairmont to Grant Town.

Dr. R. V. Lynch, formerly of Clarksburg, has located at Erie, W. Va.

Dr. W. H. Wilson, of St. Albans, is spending a few weeks in postgraduate work at the New York Polyclinic College and Hospital.

* * * * *

Keyser, W. Va.,
January 20, 1913

Editor West Virginia Medical Journal:

The Grant-Hampshire-Hardy-Mineral Medical Society held an interesting meeting in the library of the Cohongoronto Club, Keyser, on January 16th. The attendance was fair and the papers excellent. The program consisted of papers by Drs. Love of Moorefield, and Strahan of Blaine, and the presenting of two postoperative eye cases by Dr. Hoffman of Keyser. One of these cases was an enucleation with the introduction of the "Gold Globe" upon which rested the artificial eye.

A committee was appointed to report at the next meeting, upon the advisability of dividing the Society, having one organization embrace that part of four counties lying in the South Branch Valley, and another organization, that section lying in the North Branch Valley. It takes part of two days for some of the members living in one valley to attend the meetings when held in the other, if transportation is made by rail; and during the winter months the roads are in such condition that it is impossible to make the trip of from twenty to forty miles by automobile. Under the present con-

ditions very few of the members from one section attend the meetings held in the other section of our territory.

HOLMES YEAKLEY, *Sec'y-Treas.*

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On December 3, 1912, the Kanawha Medical Society met in the Kanawha Hotel and elected the following officers for the ensuing year:

President, P. A. Haley; vice president, J. E. Cannaday; secretary-treasurer, G. B. Capito; councillors, H. G. Nicholson, J. M. McConihay, B. S. Preston, M. V. Godbey; censors, A. M. Shawkey, Chas. O'Grady, J. W. Moore.

* * * * *

Three cheers for Doddridge County Society, the first in the state to pay dues in full for 1913. Go, and do likewise all ye tardy ones. If you can't be first, at least don't remain until the last.

SECRETARIES' CONFERENCE

The annual conference of County Medical Society Secretaries and Presidents was held at the Association headquarters, Charleston, on January 15, 1938, with 35 representatives from 19 county societies in attendance. Dr. E. A. Courrier of Keyser, secretary of the Potomac Valley Society, served as chairman of the conference.

Featuring the January 15 conference was an address on "Socialistic Trends in Medicine", by Dr. R. G. Leland, Director of the Bureau of Medical Economics of the American Medical Association. Dr. Leland advised the conference of the resolution adopted by the A. M. A. Board of Trustees, urging the state and county medical societies to take the initiative in promoting competent surveys of medical needs in their communities.

The Conference was called to order at 10:30 o'clock A. M. and Dr. C. W. Waddell, Fairmont, Association president, made the opening remarks. Greetings to the secretaries and presidents were extended by Dr. B. H. Swint, president of the Kanawha Medical Society, and Mr. Joe W. Savage, executive secretary. Dr. A. E. Amick and Dr. Thomas W. Nale then reported on and discussed the postgraduate refresher courses of the past two summers and also discussed diphtheria and smallpox immunization under the new compulsory immunization law.

Group hospitalization in West Virginia was covered by Mr. John Hart, manager of Hospital Service, Inc., Charleston. Dr. Leland's address concluded the morning session and the conference recessed for luncheon at the Daniel Boone Hotel.

The afternoon session was opened by Dr. Donald L. Butterfield, medical advisor to the State Department of Public Assistance. He discussed medical participation in the various phases of the Public Assistance Act. The final report was presented by Dr. W. M. Sheppe, Wheeling, chairman of the Association's Syphilis Committee, on "Syphilis Control in West Virginia." Each address was thoroughly discussed by those present at the conference.

Following the conference, the secretaries, presidents and their wives were guests at the annual dinner dance of the Kanawha Medical Society which was held at the Kanawha Country Club.

Those present at the conference and luncheon were: Doctors C. W. Waddell, Dana T. Moore and J. L. Patterson, Logan county; Robert S. Baer, Greenbrier Valley; A. V. Cadden, Preston county; A. S. Brady and B. H. Swint, Kanawha county; J. R. Tuckwiller, Marion county; Robert O. Pletcher, Lewis county; James L. Wade, Parkersburg Academy of Medicine; W. V. Wilkerson, Boone county; James G. Ralston, Harrison county.

Doctors A. Parker Butt and Guy H. Michael, Barbour-Randolph-Tucker; A. B. Bowyer, Central West Virginia; Walter C. Swann, Cabell county; W. A. Flick and E. A. Courrier, Potomac Valley; J. A. Streibich, Marshall county; D. C. Ashton and L. M. Halloran, Raleigh county; Marvin H. Porterfield, Eastern Panhandle; Ray C. Otte, Brooke county; W. M. Sheppe and W. C. D. McCuskey, Ohio county; Mr. John Hart, R. G. Leland, A. E. Amick, Thomas W. Nale, D. L. Butterfield, G. C. Schoolfield, Compensation Commissioner A. G. Matthews and State Health Commissioner A. E. McClue.

THE FOUNDATION PRIZE

Dr. James R. Bloss, Huntington, secretary of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, has just announced the rules governing the award of "The Foundation Prize" given annually by that organization. The complete set of rules follow:

(1) The award which shall be known as "The Foundation Prize" shall consist of $500.00.

(2) Eligible contestants shall include only (a) interns, residents, or graduate students in Obstetrics, Gynecology or Abdominal Surgery, and (b) physicians (with an M. D. degree) who are actively

practicing or teaching Obstetrics, Gynecology or Abdominal surgery.

(3) Manuscripts must be presented under a nom-de-plume, which shall in no way indicate the author's identity, to the secretary of the Association together with a sealed envelope bearing the nom-de-plume and containing a card showing the name and address of the contestant.

(4) Manuscripts must be limited to 5000 words, and must be typewritten in double-spacing on one side of the sheet. Ample margins should be provided. Illustrations should be limited to such as are required for a clear exposition of the thesis.

(5) The successful thesis shall become the property of the Association, but this provision shall in no way interfere with publication of the communication in the Journal of the Author's choice. Unsuccessful contributions will be returned promptly to their authors.

(6) All manuscripts entered in a given year must be in the hands of the secretary before June 1st.

(7) The award will be made at the annual meeting of the Association, at which time the successful contestant must appear in person to present his contribution as a part of the regular scientific program, in conformity with the rules of the Association. The successful contestant must meet all expenses incident to this presentation.

(8) The president of the Association shall annually appoint a Committee on Award, which, under its own regulations shall determine the successful contestant and shall inform the secretary of his name and address at least two weeks before the annual meeting.

GEORGE WASHINGTON UNIVERSITY CLINIC

The sixth annual postgraduate clinic of George Washington University will be held at the University Medical School and Hospital for one day only, February 19, 1938. There will be a symposium on heart disease with eight papers stressing the latest developments in the fields of cardiology and peripheral vascular diseases in both their medical and surgical aspects. In addition there will be pathological, physiological and clinical demonstrations.

The afternoon session will be devoted to the presentations of lectures on interesting subjects in psychiatry, pharmacology, medicine, surgery and obstetrics.

Woman's Auxiliary

FAYETTE COUNTY

On November 5, 1937, the Woman's Auxiliary to the Fayette County Medical Society sponsored the appearance in Montgomery, West Virginia, of Dr. William Freeman Snow, president of the American Social Hygiene Association.

Dr. Snow gave a most interesting and enlightening address on "Venereal Diseases."

The meeting was held in the New River State College gymnasium and was open to the general public.

* * * * *

The regular bi-monthly meeting of the Fayette Auxiliary was held on November 18 at the M. E. Church, Montgomery, with Mrs. H. F. Troutman, president, presiding. Fifteen members attended this session.

Dr. A. E. McClue, State Health Commissioner, was the guest of honor. He addressed the group on the public health laws of West Virginia.

Under business considered were special exhibits for the annual meeting of the State Association and Auxiliary to be held at White Sulphur Springs next July.

The next meeting of the Fayette Auxiliary will be held January 20.

MRS. R. D. KETCHUM, *Secretary.*

HARRISON COUNTY

The regular monthly meeting of the Auxiliary to the Harrison County Medical Society was held on Thursday, January 6, at the Stonewall Jackson Hotel, Clarksburg. Mrs. A. J. Kemper, president, presided. Eighteen members were present. Following dinner the program was presented.

Mrs. C. C. Jarvis reviewed Dr. Hans Zinsser's book "Rats, Lice, and History." This was an amusing and interesting presentation. Mrs. H. H. Esker made a presentation entitled "A Tribute to a Doctor." The program was well planned and enjoyable.

During the business session the Auxiliary voted $25.00 to be donated to a local milk fund.

The Auxiliary to the Harrison County Medical Society met December 2, 1937 at 6:30 p. m. in the Stonewall Jackson Hotel, Clarksburg. Mrs. A. J. Kemper, president, called the meeting to order. Fourteen members were present.

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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

ASSOCIATE EDITORS:
J. HOWARD ANDERSON
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SYPHILIS IN INDUSTRY*

By JOSEPH EARLE MOORE, M. D.
Baltimore, Maryland

Until recently medical directors and administrators of large industrial corporations evinced little interest in the disease—syphilis. The current publicity, both medical and lay, which has been given to this disease in recent months may actually produce an unexpected sociological by-product. Some industrial firms and certain branches of the federal government have seen fit to inaugurate routine blood tests for all those applying for positions and are inclined to refuse employment to those found to have positive serologic tests for the disease. Even more seriously, certain individuals already employed, having been found to have such positive serologic tests, have been summarily dismissed. The justification for such action on the part of corporation officials, either lay or medical, is expressed as follows:

(a) There is considerable danger of transmission of syphilis to others (particularly by food handlers).

(b) A syphilitic person using dangerous machinery may endanger the life of himself or the lives of others.

(c) There is additional financial risk to the company because the employee may become disabled and his disability prolonged, either directly or indirectly, because of syphilis. This fear has been aroused because of the fact that the courts have awarded industrial compensation for injuries which were aggravated by already existing conditions (e. g. syphilis).

The physician skilled in the management of syphilis may readily see that the use of the routine blood test as a standard for employment provides an untrustworthy yardstick for the following reasons:

(a) The danger of transmission of syphilis through contact not related to sexual activities is very slight, even in the case of food handlers, barbers and beauticians. If the infection is old, there is little or no danger of such infection. If it is recent and may be classed as an early infectious syphilis, the individual is immediately placed in the non-infectious group as soon as modern treat-

*From the Syphilis Division of the Medical Clinic, Johns Hopkins Hospital, Baltimore, Maryland.

ment is instituted. If he receives treatment for as much as forty weeks, he will, in the large majority of cases, remain non-infectious. It is obvious that the risk of infecting others is practically eliminated as soon as treatment is well under way. The employer's obligation to society and to his employees for the prevention of the dissemination of syphilis is much better discharged if the infected person is continued in his usual employment and if this employment is made contingent upon immediate and prolonged treatment. If the employee is dismissed, he is immediately lost from supervised control and may have no treatment at all. It is easy to see, therefore, that if the latter course is followed, the danger of spreading syphilis still further in the community becomes real. If the employee is continued in his usual work and treatment insisted upon, the possibility of spread of the disease is extremely slight.

The above remarks particularly relate to early infectious syphilis. If the employee has harbored the disease for five years or more, there is no danger of infecting his fellow workers and refusal to retain such an employee on this basis is indefensible.

LIVES NOT ENDANGERED

(b) The mere fact that an individual has syphilis does not necessarily mean that his activities endanger his own life or that of others. The only two types of syphilis which are likely to produce accidents due to the sudden incapacity of the worker are cardiovascular syphilis and neurosyphilis, the latter especially of the paretic type. If cardiovascular and neurosyphilis are excluded, there is no available evidence that industrial accidents are produced more frequently by the carelessness of syphilitic persons than by non-syphilitic workers.

It must be remembered that a blood Wassermann test does not, *per se*, establish or rule out a diagnosis of cardiovascular or neurosyphilis. In fact, in both types of involvement, the blood tests may be negative. Such diagnoses can be established only by a careful estimation of the physical status of the patient, and in neurosyphilis, by means of spinal fluid examination. It would indeed be hazardous to imply that it is perfectly safe for individuals with cardiovascular syphilis (who may suddenly drop dead) or those with paresis (whose judgment is extremely faulty) to be given responsibility of dangerous machinery which may destroy other lives as well as their own. Strangely enough, though transportation systems such as railroads, aviation companies, bus and trucking companies sometimes require a negative test for syphilis as a prerequisite to employment, none of them require their employees to submit to any periodic check-up from this point of view. Thus, though it is insisted that an engineer or an aviator must be free of syphilis to receive employment, once on the job he is free to acquire the disease and (so far as the company knows) to ignore treatment without any effort to control this situation. Such men are responsible for the lives of dozens of other individuals. It would seem, from the standpoint of public safety, that a study of individuals to be found at the throttles of our transportation system would be extremely wise. In those instances in which there has been some attempt made, it has been made in a rather unintelligent fashion. Certainly, a routine positive blood test should not be the criterion for the refusal to hire or for dismissal of the employee. If any hazardous occupation is involved, however, the finding of such a reaction in the blood, should immediately result in the initiation of a careful study of the individual involved and an individual decision should be made in each case. If cardiovascular and neurosyphilis are excluded, employment should be granted or continued, provided adequate treatment is available.

If the occupation is non-hazardous, the question of public safety does not arise and the decision to make routine blood examinations must depend on other factors.

(c) There is no adequate information now available which indicates that compensation or social insurance costs are increased by the

employment of those who have had or do have syphilis. If any corporation or government bureaus have this information at hand, it has not been made available in the current literature.

While there are exceptions to all rules, there is no sound evidence to indicate that the syphilitic worker (granting that those with cardiovascular and neurosyphilis are excluded) is any more likely:

(1) to be involved in any accident;

(2) to suffer any more serious or prolonged disability from an accident;

(3) to lose any greater amount of time from sickness;

(4) even to undergo any material shortening of his life span, than any other individual.

Adequate treatment certainly tends to eliminate any small extra risk which may be inherent in the syphilitic worker.

EMPLOYERS CAN HELP

If an employer learns that an employee has syphilis, he is in a position to be most helpful to this individual, provided he is continued in his employ, thereby insuring worthwhile treatment. If the worker is dismissed, any form of control except that arising from the patient himself is entirely lost. It is obvious from the foregoing that cases of syphilis developing in an industrial organization must be considered each on its own merits. It is absolutely impossible to lay down general rules which will apply. The employer renders the best service to society and to the individual, at the same time protecting himself, by a continuation of the employment of the syphilitic worker but with absolute insistence on careful adequate treatment.

Another aspect must be repeatedly emphasized: an employer who learns of the syphilitic infection of his employee must make every effort to preserve absolute secrecy, thereby preventing the whispering campaigns which so often result in a factory or office group. Many individuals have actually deprived themselves of their means of livelihood rather than continue in a group which had learned of this infection. The employer coming into possession of such important medical knowledge must recognize and adhere to the same ethical principles which would be followed by his physician. The patient must be protected.

If, by some means, the employer learns of the presence of syphilis in his present or potential employee (who may be unaware of his infection) a very definite obligation to the employee and to society is incurred, not only to inform the patient of his infection, but also to insist upon and aid in securing adequate medical care.

EXAMINATIONS FOR EXECUTIVES

There is not, to my knowledge, any corporation which has required the use of routine blood examinations for its executive force. This implies a rather serious medical and class discrimination. The degree of importance of the labor performed has nothing to do with the discovery of syphilis. As a matter of fact, an executive with delusional trends as a result of paresis may readily wreck an entire company before he can be removed—something which would never happen due to the inefficiency of a secretary or a manual laborer with latent syphilis. If we are going to be consistent in our recommendations, we must insist on the performance of routine serologic tests beginning with the president of the company, the board of directors, the medical directors, and all others, regardless of sex, age, social status or yearly salary. If any syphilitic individual is to be dismissed on the pretext of danger to the company, certainly the syphilitic executive should be ousted before the minor employee whose responsibility is relatively unimportant.

In these days of statistical consideration of unemployment, it is interesting to note that there are about ten million people in the country with syphilis. At least half of these have at the present time and probably will continue to have positive blood tests regard-

less of the treatment they may receive. Naturally, if such a trend toward non-employment of syphilitics continues without substantial alteration of this policy, the resulting social situation will be serious indeed. Shall five million people be refused employment because they have positive blood tests? Is it reasonable to make such a refusal on a wholesale basis, considering only the blood examinations and omitting entirely the patient's actual physical condition or the completeness of his past, present, or future treatment? Does it seem reasonable to bar a man with latent syphilis (so-called Wassermann fast in spite of every effort of his own and competent medical attention) from ever more securing or holding a position? Is it reasonable for many skilled workmen unfortunate enough to acquire syphilis to be eliminated from the industrial picture? Nor must we forget those unfortunate individuals with latent congenital syphilis who have positive blood tests throughout their lives in spite of the most thorough treatment.

SHOULD CONTINUE WORK

If those individuals having syphilis are refused work, only one other fate remains for them, namely, the relief agencies. Are these millions of workers to be placed permanently on relief of some kind or another because they have non-infectious and non-disabling syphilis? If so, the costs to the employers of labor in taxes to support these people on relief will be enormous. Obviously, such a condition cannot be allowed to exist. The alternative is to handle the problem on the basis of intelligence and knowledge of syphilis and to continue the employment of those individuals physically able to perform their duties.

1. There has recently been an enormous increase in interest, both lay and medical, in regard to syphilis.

2. Such an interest with its concomitant increases activity on the part of public health and other agencies, will undoubtedly result in the discovery of a large number of syphilitic individuals in industry.

3. The detection of the disease in industry is at the present time principally by routine blood Wassermann tests.

4. The trend has been to eliminate all syphilitic individuals from their employment on the following basis:

(a) Danger of transmission of syphilis to others.

(b) The risk arising from syphilitic persons handling dangerous machinery.

(c) Additional economic risk imposed upon the company.

5. It has been shown that:

(a) The type of syphilis detected by the routine serologic test is usually non-infectious.

(b) That unusual risks attached to the activities of syphilitic individuals are chiefly limited to those having cardiovascular syphilis and paresis, neither condition being so diagnosed by the routine blood examination alone.

(c) There are no data to indicate that the syphilitic worker excepting those with cardiovascular and neurosyphilis inflicts a greater economic risk upon the company than his more fortunate brother.

6. The responsibility of the employer who learns his present or potential employee has syphilis is pointed out.

7. The dragnet for the discovery of syphilis should be extended to the executive force as well as the minor employees.

8. The economic impossibility of discharging or refusing employment to those who have latent syphilis is emphasized.

TRICHINOSIS IN AMERICA

America is the most trichinous country in the world, asserts David O. Woodbury in his article "This Little Pig" appearing in the February *Hygeia*.

Between 10 and 12 million Americans have contracted trichinosis through failure to cook infected pork thoroughly. It is not a bacterial disease caused by rotten meat but an infestation of perfectly sound pork by a tiny wormlike parasite; the disease develops mainly in hogs fed on garbage containing already infected pork scraps. Pork of any kind must be cooked until white.

STUDIES IN THE TRANSMISSION OF SYPHILIS

By DUDLEY C. SMITH, M. D.*
Charlottesville, Virginia
and
Wm. M. SHEPPE, M. D.**
Wheeling, West Virginia

It is a well recognized fact that syphilis is a widely prevalent and, at intervals, a rapidly spreading disease. It has been estimated by the United States Public Health Service that possibly 500,000 new cases of syphilis are diagnosed each year. This number of new infections added to the old ones produces a staggering total. In the earlier days, it is possible that syphilis spread in even a more wholesale fashion than is noted at the present time as we have historical references to external and physical manifestations occurring in large groups of the population, particularly following movements of armies from one section of the country to another. The present-day spread of syphilis is more insidious and less sudden but is none the less sure. It is probably propagated in small epidemics rather than on an even front. It is probable that the known cases are only a small part of the actual total existing. Possibly by utilizing the fractional number of known cases, we may be able to unearth those which have so far been buried in obscurity. The close relationship of the spread of syphilis with sexual morality has hindered the application of known medical measures. There is no lack of understanding of the conditions under which syphilis is usually transmitted. Efforts to control the disease have so far been made principally along the lines of education of young people in sex matters with particular emphasis on continence, by the education of the incontinent in the use of prophylaxis, by the suppression of commercialized prostitution, and by an effort to extend treatment so that infected persons may be rendered non-infectious as early as possible. So far the measures outlined above have not proven adequate to control the disease or bring about any real reduction in its incidence in the United States.

An additional move along this line by the United States Public Health Service has been an attempt at mass sterilization of the colored population based upon extensive serological surveys with the idea that some of the greater reservoirs of infection may be dried up. It is as yet too early to judge the effectiveness of this attack.

PUBLIC HEALTH PRINCIPLES

The application of ordinary public health principles toward the detection and prevention of syphilis has been deterred by an attitude of aloofness sometimes shown by physicians. There is also some failure on the part of syphilologists and epidemiologists to set the proper example along this line. Sexual transmission of the disease with its moral aspects has seemed such an insurmountable hazard, but it is probably only a mental handicap. It is obvious that a disease which is transmitted almost entirely by one method should be easier to follow than one transmitted for instance by insect vectors. The doctor may feel that it is not desirable for him to question his patient too closely in regard to domestic affairs or sexual partners as he may seem to seek patients by such questions. This attitude is partly due to false professional ethics and partly to lack of energy and persistence. This is a problem which must be solved by individual initiative and is not capable of solution by the application of mass methods. An effort has been made by our epidemiologists and syphilologists to work with the societies for the suppression of vice, instead of setting their forces to work against a communicable disease. The medical man should recognize the relation of this

*From the Department of Dermatology and Syphilology, University of Virginia, Department of Medicine.

**Wheeling Clinic, Wheeling, West Virginia.

malady to vice but should adhere closely to the fact that he is still dealing with an infectious disease, one subject to the principles of spread and contact just as much as diphtheria or smallpox.

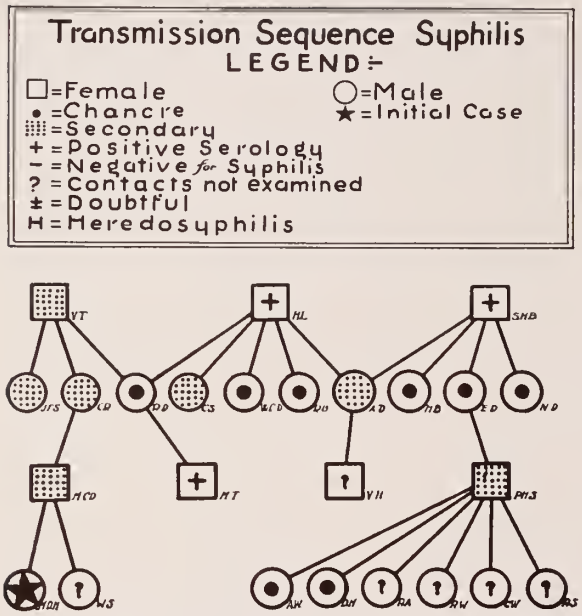

Chart 1.—Result of tracing source cases and contacts beginning with a private male patient with a chancre. Twenty-five names were obtained; nineteen persons were examined and found to have syphilis; six have not been examined by us.

Very little consideration has been given to the sources of infection and a real follow-up of contacts. In this disease, we have an active infection and a carrier problem in one and the same person. It is obvious that sources of infection may be easily determined since only a relatively few persons may be exposed to any individual case. Elaborate investigation is not necessary. Information from the patient in the office or clinic is the best method of securing the information relating to the transmission of any given patient's infection and of plotting its course. There has been a general assumption that the follow-up of contacts and the follow-back to the origin of the contagion is the idealistic plan but impractical because patients will not divulge the names of sexual partners. The experience of the authors in this matter emphatically denies this fact. This method of approach has been carried out as a routine measure for the past several years at the University of Virginia Hospital and Clinic and the results herewith reported speak for themselves. It is quite unusual for a patient with early syphilis to be unable to name his recent consort or consorts as the case may be.

GAIN PATIENT'S CONFIDENCE

Such investigation undoubtedly demands a large amount of patience and tact. Every effort must be made to gain the confidence of the patient by employing a slow approach to the subject. The nature of the disease should be explained in detail. This also is true of all cases of syphilis. After the dangers inherent in the disease are explained to the patient as an individual, the facts of his infection in regard to others should be enumerated. After his coöperation has been obtained, maneuvers toward securing possible sources of infection and recent contacts since infection are made. If the first attempt is not successful, other attempts may lead to a better understanding. These may be carried out at different visits before all of the important information is obtained. Names and addresses are asked for but are not recorded in writing in the presence of the patient. If the names and addresses of contacts are obtained, letters are sent to these people advising them to be examined. These letters simply state that a friend of the one addressed is coming to the hospital for treatment of a serious blood disease. The following is an excerpt from such a letter: "This disease is often very slow in showing up but may cause a great deal of trouble if allowed to go untreated. Since your friend has this disease, it may be possible that you have contracted it also. You should make every effort to come into the hospital for examination and advice. If you cannot come to the hospital you should see your family physician and have him communicate with us."

It has been our experience that a certain number of contacts will be visited by patients and advised to respond to the letter as outlined above. If such a contact presents himself or herself, the whole matter is carefully

explained and a further request made for additional contacts of this individual. In this way, the spreading branches of the epidemiologic tree sprout from a single trunk. The contact who has been named and has no complaint but comes in for consultation in response to a letter or message, offers a different type of problem in medical diplomacy. It is explained why he was advised to come for examination. Emphasis is placed on the attempt to insure his safety and that of others and stressing the importance of syphilis as a disease. He in turn is questioned about other contacts or the names of other persons who have been associated with any of his consorts. If this individual hesitates to reveal names, he is urged to advise personally those whom he knows or believes to have been exposed and to urge them to seek medical advice. A number of patients and exposed contacts are thus promoted to the status of real sanitary officers.

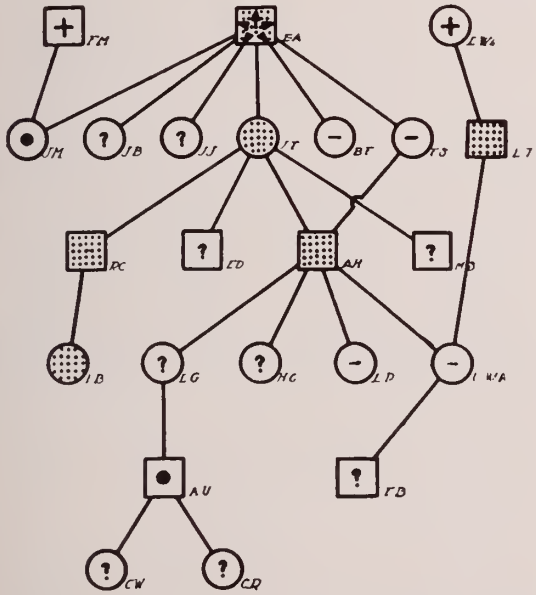

Chart 2.—Result of case finding in a group of Negroes, starting with a female patient with secondary syphilis.

There is nothing particularly new about this type of approach, but with a very few notable exceptions, public health officials have disregarded its practicability and effectiveness. It is quite probable that the general population has progressed in spite of lack of general education facilities to a rather sensible view in regard to syphilis. In addition, many patients believe that their infections are reported by name to the health department and are not surprised when questioned closely in regard to their recent sexual contacts.

LEGAL MEASURES RARELY NECESSARY

It is doubtful that this type of investigation can be done successfully by nurses or social workers alone. They may prove to be a considerable aid in following up information obtained by the physician. It is only rarely that the use of legal measures become necessary. This move is always put off until the very last, being applied to those particularly who constitute active infectious menaces.

The success of this type of investigation is not limited to large cities. Cheap and rapid transportation to good clinic facilities has made it available for rural populations throughout the country.

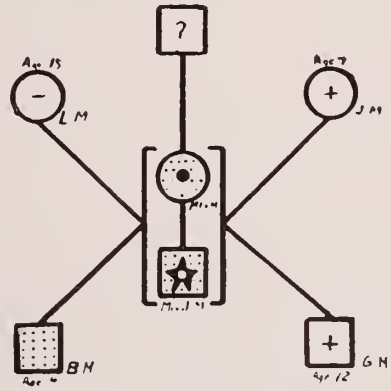

Chart 3.—In this group the husband infected the wife. Three of the four children were found to have acquired syphilis.

If the entire population through one generation should be repeatedly examined, clinically and serologically for syphilis, and infected persons given the minimum standard of modern treatment, there would be no more syphilis to deal with. Obviously no such action is possible. The approach must necessarily be slower but the pace up to the year, 1938, has been too slow and should be accelerated.

Patients in general seem to be favorably impressed with the interest shown in themselves or others whom they may have in-

fected, and it is believed that the reaction to this interest is a greater percentage of patients adhering to the minimum standard of treatment. The Coöperative Clinical Group has reported that 84 per cent of patients with early syphilis discontinue treatment before they are rendered non-infectious

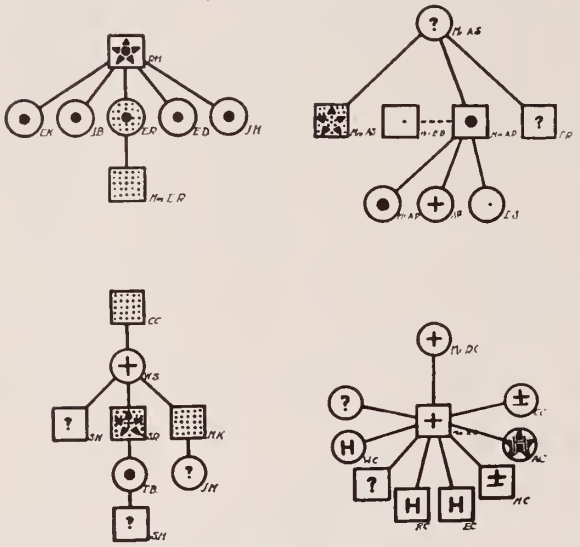

Chart 4.—Several groups of small episodes, one group showing heredosyphilis.

while at the University of Virginia Hospital Clinic, only 58 per cent have discontinued treatment. This figure is exclusive of patients referred to other physicians or clinics and was accomplished without the aid of an elaborate social service or follow-up workers. It is recognized of course that the detection of syphilitic individuals is only one of the stepping stones leading to the final control of the disease.

FIRST STEP IS DETECTION

It is only one aid in the control of syphilis but a very important one, and closely related to the other details which include education of physicians, administrators of government, directors of industry, the setting up of diagnostic facilities and the management of delinquent patients. Nevertheless, the first step in the prevention of syphilis is the detection of infected individuals, and the charts accompanying this article illustrate something of the method of tracing such cases and contacts.

In order to express in numerical terms the follow-up and follow-back of early syphilitic infection and contacts, the following figures may be emphasized: Two hundred and seven infected cases were questioned and named 511 individuals as possible contacts, although when duplicate names were removed 421 individuals were represented. These were contacted by various means, either through friends, by letter or by a local health officer. One hundred and seventy-one such individuals responded, 40.8 per cent of those who had been named originally. Of these 171 persons, 126 or 73.7 per cent were found to be infected and were placed on treatment. Obviously without the system of questioning which has been inaugurated and which has been described above, these 126 patients would have gone on without treatment thereby endangering their own future health or even life, and acting as a constant menace to those with whom they came in contact. Although the series is not large, it speaks eloquently of the results to be obtained with a minimum expenditure of effort, provided the physician is properly informed and sufficiently enthusiastic to carry out such a plan.

TABLE 1.—Results of Serologic Survey for Syphilis in Negroes in Six Southern Counties*

Number Examined	Number Positive	Early Cases†	Number Treated
33,234	6,800	206‡	5,905

*Data obtained through courtesy of the U. S. Public Health Service.
†Period of greatest infectiousness.
‡This figure would undoubtedly have been larger if it had been possible to determine the infections acquired within two years, the period when contagious relapse is most frequent.

TABLE 2.—Follow Up and Follow Back of Early Syphilitic Infections and Contacts

	Exposed Contacts								
				Admissions to Clinic				Estimated Infected	
				Total		Cases Infected			
Infected Cases	Named	Individuals Represented	Number per Case	Number	Per Cent	Number	Per Cent	Total No.	No. per Case
207	511	421	2.03	171	40.6	126	73.7	316	1.52

(1) A system of case finding as applied to syphilis has been inaugurated.

(2) The principles of this system are extremely simple; namely, the careful and considerate questioning of each infected indiv-

idual who presents himself for treatment. Such individuals are requested to give names and addresses of their sexual partners.

(3) Such contacts are traced by letter, by friends or through a health officer.

(4) Legal pressure is avoided whenever possible and has been necessary in only a very few instances.

(5) When the contact presents himself or herself, the situation is carefully explained and the names of further sexual partners are requested.

(6) A rather large number of contacts have responded to a request to present themselves for this examination. Of this number a very large percentage, 73.7 per cent, have been found to be infected.

(7) These results show that it is practical to trace sources of infection and exposure in syphilis. By such a measure a larger proportion of cases is brought under observation. The period of infectiousness of these cases is greatly reduced and the secondarily infected group thereby markedly decreased.

(8) It is the experience of the authors that questioning of patients when carried out in a proper and considerate manner does not result in ill will or an obstinate refusal to supply such information.

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FACILITIES OF THE STATE HYGIENIC LABORATORY FOR DETECTION OF SYPHILIS

By K. E. COX
Charleston, W. Va.

It has long been recognized that adequately controlled serology is a necessary, though not infallible factor in the establishment or confirmation of a diagnosis of syphilis. Serological examination of the blood is of great diagnostic value in all stages of the untreated disease except the early seronegative stage (usually ten to twenty days after infection), and in the several manifestations of neurosyphilis wherein five to twenty per cent of cases have been reported seronegative by both complement fixation and flocculation tests. Fortunately, a high per cent of neurosyphilitics with negative blood serology give positive reactions when the spinal fluid is tested.[1 2] The importance of the "dark field" examination of chancre and aspirated glandular fluid as an early diagnostic measure cannot be overstressed; this is well illustrated by Figure 1, taken from McDaniels,[3] where, of 1061 known primary syphilitics, 90 per cent were found positive by the dark field technique and less than 50 per cent by serological tests during the first two weeks of the disease.

Since 1928, the routine procedure in the State Hygienic Laboratory has been to apply the Kahn Standard (flocculation) test to blood specimens and the Kahn and colloidal gold tests to spinal fluids; other related determinations, as globulin content, are carried out upon request. Table I presents a summary of syphilis serology for the last five fiscal years. A recent change in serological procedure will be described in the latter part of this article. Little "dark field" work was done prior to 1936, when mailing containers for such specimens were made available upon request to the physicians of the state. In 1935, the Public Health Council ruled:

"That, effective January 1, 1936, all work done by the State Hygienic Laboratory shall

be done free of charge. Only work for the following types of cases will be done by the State Hygienic Laboratory: 1. Charity cases properly certified to by both patient and physician. 2. Public health agencies and state institutions. 3. Private physicians doing work of a public health nature."

"DARK FIELD" EXAMINATION OF CHANCRE FLUID

There has been relatively little use of the laboratory's "dark field" service since its institution, only eighty-five specimens having been submitted; of these 31.8 per cent were unsatisfactory for examination and 29.3 per cent showed typical spirochetes. Although immediate examination of suspected chancre fluid is preferable to delayed examination, this laboratory in common with other observers has repeatedly found living spirochetes in specimens held at room temperature in carefully sealed capillary tubes for four days. A negative delayed dark field examination should not be interpreted as excluding the possibility of syphilis; repeat specimens should be submitted. A positive result may however be of great value to the patient by establishing early diagnosis.

Dark field specimen containers supplied by the laboratory consist of three capillary glass tubes into which the clear straw-colored exudate from the suspected lesion should be drawn to form a column approximately one-half to one inch long; wax-filled ampoules were furnished until recently, so that the tubes containing exudate might be "plugged" immediately by pressing both ends into the wax mixture. The unsatisfactory specimens submitted during the past year have been predominantly of three types:

1. Capillary tubes open at one or both ends; the Treponema pallidum is readily killed by access of oxygen or by drying.

2. Capillary tubes sealed but containing insufficient fluid for examination; at least a drop is necessary.

3. Fluid containing blood or pus: clear fluid is necessary; spirochetes even though profuse can seldom be seen in a bloody specimen.

With a view to overcoming some of these difficulties, the specimen containers supplied at present have capillary tubes of slightly smaller bore and small rubber bulbs for readily drawing up the fluid; flat boxes filled with a soft wax mixture have been substituted for the wax ampoules. The tubes containing fluid should be laid horizontally on the wax surface and embedded in it by gentle pressure applied uniformly and simultaneously at both ends. Suitable specimens can seldom be hastily collected; instructions are enclosed with each outfit. The following suggestions may be helpful in the field:

1. No soap or antiseptic should be applied to the lesion. Collect specimen before institution of treatment.

2. After washing with sterile water, abrade lesion gently with dry gauze so as to provoke slight bleeding and serum exudate. Wipe away first few drops, waiting for appearance

TABLE 1
KAHN STANDARD TESTS ON BLOOD AND SPINAL FLUID SPECIMENS
West Virginia State Hygienic Laboratory

Fiscal Year	BLOOD SPECIMENS				SPINAL FLUID SPECIMENS			
	Total Number	Unsatisfactory	Positive	Percent Positive	Total Number	Unsatisfactory	Positive	Percent Positive
1932	25,081	——	4772	19.0	432	19	203	49.2
1933	36,766	830	7245	20.1	582	19	203	36.1
1934	43,251	1177	7847	18.7	618	11	243	40.0
1935	35,381	1431	5839	17.2	750	10	191	25.8
1936	43,904	2175	6885	16.5	626	9	218	31.4

of clear serum; this may be aided by gentle pressure at base of lesion, but may take ten minutes of constant attention!

3. Collect as much fluid as possible; at least two tubes should be filled. Collection will be aided by holding tube horizontally against exuding droplet.

4. Tubes should be so handled as to prevent loss of fluid before sealing. Inspect carefully to see that tubes are well sealed and contain sufficient fluid.

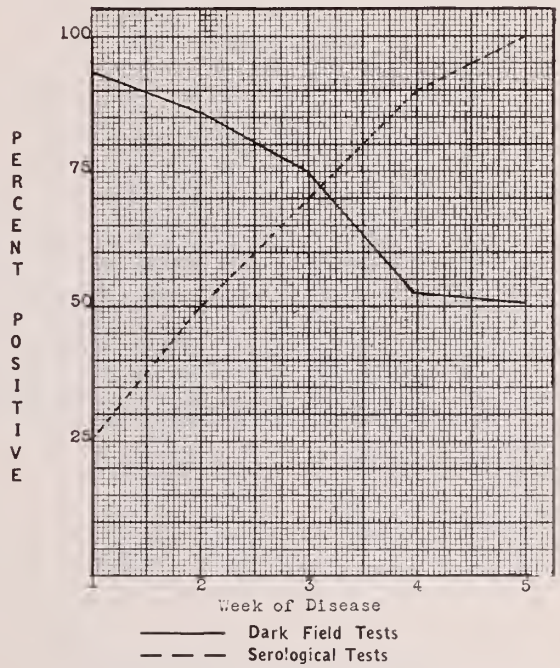
5. Fill out history form completely, replace in container with specimen and mail immediately to laboratory, preferably by special delivery. Do not refrigerate specimen.

Realizing the importance wherever possible of the immediate examination of suspected chancre fluids, the State Health Department has recently supplied a dark field microscope to each of three county health units; information relative to immediate dark field service in these areas may be obtained from the Division of Venereal Diseases.

SYPHILIS SEROLOGY

The serological methods commonly used in this country are the complement fixation techniques (the "Wassermann" of many modifications) and the flocculation tests, such as the Kahn, Eagle, Kline, Hinton and dozens of others. With such a plethora of techniques from which to choose, it becomes necessary to postulate the criteria for an adequate test or combination of tests. Obviously, this implies a highly sensitive test or tests which will give a high percentage of positive results in syphilis, without giving "false positive" reactions in non-syphilitics; it must be reliable in the hands of the average laboratory worker, therefore technically as simple as possible, especially where large numbers of specimens must be examined. The consensus of opinion is that the flocculation tests are more sensitive, and certainly more simple, than the complement fixation techniques. No serological test is known which will detect syphilis 100 per cent. For the last three years the United States Public Health Service has conducted annual studies to determine the reliability of various serological techniques, both in the hands of the originators of the tests and in the hands of serologists in general.[4 5 6] Realizing that the same patient may give variable serological reactions on different days, large quantities of blood were withdrawn at one time from each donor. Identical portions of each large specimen from known syphilitic and non-syphilitic donors were sent, under code numbers unknown to the recipient, to

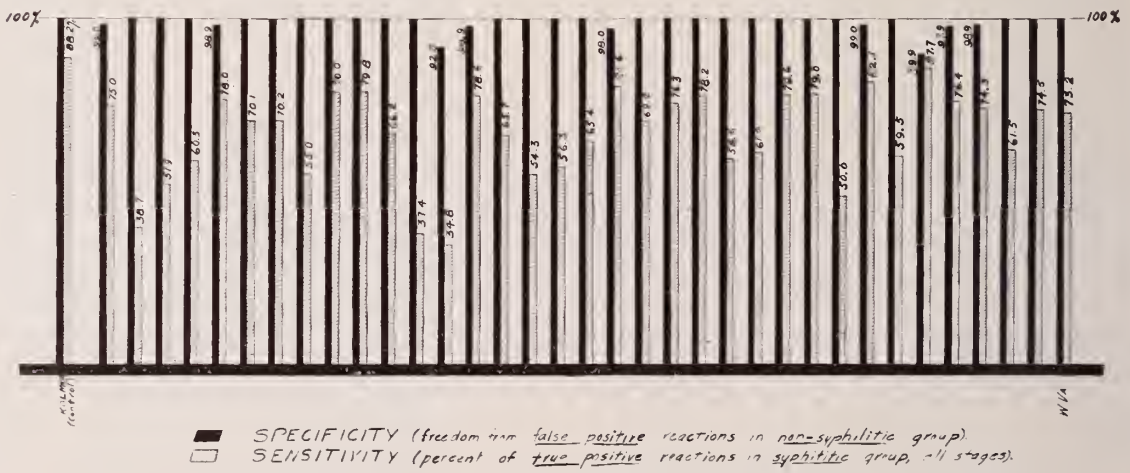
FIGURE I
Percent Positive Tests by Weeks
In 1061 Cases Proved Primary Syphilis



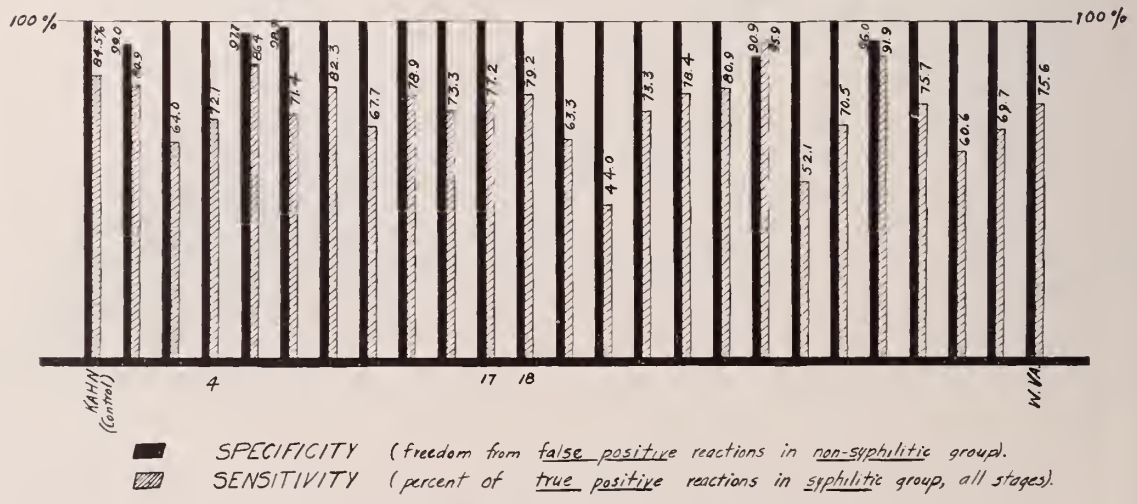
coöperating laboratories; no test was considered efficient which gave more than one per cent positive reactions in the non-syphilitic group (less than 99 per cent specificity); no performance was considered efficient unless it compared favorably with that of the originator of the technique, showing a high percentage of positive reactions in the syphilitic groups. Of the tests studied, the Kolmer complement fixation test and the Kahn and Kline standard flocculation tests are among the few that have consistently rated among the most sensitive and most specific tests.

The West Virginia State Hygienic Laboratory was entered in the second and third study, the first study being restricted to the originators of 13 techniques well known in this country. The results of the 1937 study on the Kolmer-Wassermann and Kahn standard tests are shown in the charts below, abstracted from the Public Health Service report of this study.[6] Laboratory 41 in the original report is the West Virginia State Hygienic Laboratory; control tests were run by Drs. John Kolmer and Reuben L. Kahn. It is pleasing to note that the performance of the West Virginia laboratory rates among the first eight on both tests; both tests show specificity of 100 per cent, the West Virginia—Kolmer test detecting 72.9 per cent of the syphilitic specimens (sensitivity) and the West Virginia—Kahn standard test 75.6 per cent. Considering the combined results of the Kahn and Kolmer tests run in this laboratory, about 85 per cent of the specimens from all stages of syphilis were reported positive, with no percentage false positive reactions; the comparable figure for the joint results of the control laboratories (Drs. Kahn and Kolmer) was about 90 per cent, with no percentage false positive reactions. In 1937

KOLMER-WASSERMANN TEST
Ratings of 35 State Laboratories. U. S. P. H. S. Evaluation Studies, 1937



KAHN STANDARD TEST
Ratings of 24 State Laboratories. U. S. P. H. S. Evaluation Studies, 1937



IDENTICAL SPECIMENS EXAMINED BY ALL LABORATORIES

the sensitivity of the West Virginia Kahn test was markedly improved over its rating in the previous year; this improvement is attributable solely to the exclusive use since July, 1936, of antigen prepared and standardized in this laboratory, and approved before routine use by tests in Kahn's laboratory. This affords an interesting commentary on one of the factors which greatly influences the dependability of even the well-standardized Kahn test! The quality of distilled water and salt used in reagent preparation are two other technical factors which can cause considerable variation in results with any syphilis serological test; the importance of these and other similar factors is often overlooked, with consequent variance of results in different laboratories.

CHANGE IN ROUTINE SEROLOGICAL PROCEDURE

Obviously, the optimum syphilis serological procedure is, if possible, to examine specimens by two different highly sensitive highly specific techniques, preferably a complement fixation and a flocculation test. This is economically impossible in many laboratories dealing with large specimen volumes. During the past year this laboratory has been investigating the possibilities of a "screen" test. Such a test must be highly sensitive (detecting specimens which will be positive either by complement fixation or flocculation methods), rapid and easy to manipulate. We have tried several tests, among them the Kahn presumptive and Laughlin tests. Comparison of our results indicates the Kline exclusion test most satisfactory; this is in accord with observations in the research and routine diagnostic divisions of two large state laboratories, and with results cited heretofore.[4 5 6] Consequently, all blood specimens received in the State Hygienic Laboratory are now examined routinely by the Kline exclusion test. Specimens showing negative reactions with this highly sensitive test will be so reported. The high sensitivity of the test enhances the value of a negative report. Specimens giving positive reactions with the Kline exclusion test will be retested by the Kahn standard test; if strongly positive, they will be so reported. Specimens showing negative or doubtful reactions by the Kahn standard test will be retested by the Kolmer-Wassermann technique; results of both Kahn and Kolmer tests will then be reported.

It is believed that this procedure will increase the efficiency of the serological exam-

TABLE II

KAHN STANDARD TESTS ON SELECTED POPULATION GROUPS

Blood Specimens Submitted to West Virginia State Hygienic Laboratory

Population Group	Total Number	Unsatisfactory	Positive	Percent Unsatisfactory	Percent Positive
Entire State, fiscal year 1936	43,904	2,175	6,885	4.95	16.5
Entire State (last 3 fiscal yrs.)	122,536	4,783	20,571	3.9	17.4
State Hospitals for Insane (last 3 fiscal yrs.)	2,807	49	493	1.7	17.9
Penitentiary (last 3 fiscal yrs.)	3,557	45	440	1.3	12.5
Raleigh County (1-1-37 to 11-1-37)	3,663	261	480[1]	7.1	14.1[1]
F.E.R.A. Meatpackers (1934-35)	4,974	75	449	1.5	9.1
F.E.R.A. Meatpackers—Kanawha Co. (1934-35)[2]	2,942	29	308	1.0	10.6
College and special students in State Schools (negro-1937)	173	27	15[3]	15.6	10.3[3]
College Students (white-1937)	1,024	189	21[4]	18.5	2.5[4]

(1) Positive specimens represent 413 individuals; thus, minimum percent positive individuals equals 12.3 per cent.
(2) Of 1500 men examined, 8.84 per cent gave positive reactions, 1.4 per cent gave doubtful reactions.
Of 286 women examined, 18.2 per cent gave positive reactions, 2.1 per cent gave doubtful reactions.
(3) Positive specimens represent 12 individuals; thus, minimum per cent positive individuals equals 8.4 per cent.
(4) Positive specimens represent 19 individuals; thus, minimum per cent positive individuals equals 2.3 per cent.

ination of syphilitic specimens, and also will enable the laboratory to handle the rapidly increasing volume of specimens submitted.

INTERPRETATION OF LABORATORY REPORTS

The proper interpretation of laboratory reports is a question which is often asked of laboratory personnel. No set rules of interpretation can be postulated. A laboratory can only report its exact findings on any given case, leaving the evaluation of the result to the physician who is conversant with the history and clinical findings. In general, a laboratory report should be considered as a portion of the evidence, contributory to the final diagnosis, which can only be established after careful evaluation of all types of evidence in proper relationship.[7] In syphilis serology, with carefully controlled Kahn standard or Kolmer-Wassermann techniques, the positive blood reaction (two plus, three plus, four plus) is good evidence of syphilis, if the history and clinical findings agree and in the absence of certain conditions other than syphilis which are known to give occasional or frequent positive serological reactions (malaria, leprosy, infectious mononucleosis, certain trypanosomal and other spirochetal diseases). When the blood reaction is positive, with disagreeing clinical findings, it may be the only evidence indicating a latent syphilis; repeat tests should be made to exclude the possibility of technical error, and to determine whether the serological condition is transient or persistent. If persistently positive or persistently negative in the face of contradictory clinical findings, examination of the spinal fluid may furnish the necessary clue. A negative blood Kahn or Wassermann test, and of course a doubtful (one plus) result, is not evidence of the lack of syphilis. Such results occur with considerable frequency in early and late syphilis and in the presence of contradictory clinical findings, they should be rechecked at suitable intervals.

The accuracy of laboratory results is like a chain—only as good as the weakest link. The two links are accurate laboratory examination and reporting, and meticulous attention to the details of submitting a satisfactory specimen with necessary information. From a laboratory point of view, this requires theoretically and practically well-trained personnel, selection of the best standard tests available, and constant critical appraisal of individual and mass results obtained. This laboratory welcomes opportunities to check its results with those of other laboratories and, particularly in syphilis serology, with well-established clinical diagnoses. The latter is one of the best and most necessary ways of maintaining the dependability of any laboratory technique. Consequently, the submission of a brief summary of the main clinical findings with each specimen is strongly urged. The State Hygienic Laboratory is now able to offer to any laboratory in the state, limited amounts (for intralaboratory checks) of Kahn standard antigen which has been proven of suitable sensitivity and specificity.

PRECAUTIONS NECESSARY

In the collection of suitable blood specimens from suspected syphilis, several precautions are necessary. First, an ample specimen (five c.c.) should be obtained. Hemolysis and contamination of the specimen with bacteria or foreign matter (drugs, disinfectants, dyes, etc.) must be prevented. By far the majority of unsatisfactory specimens submitted to this laboratory are hemolyzed; many others are insufficient for examination, and some are chylous, probably having been collected too soon after a meal. Table II shows the average incidence of unsatisfactory specimens, the low value that can be obtained with care, and the high incidence resulting from too rapid collection of the specimen. One of the most common causes of hemolysis is the presence of apparently negligible amounts of water in syringe or needle. The blood should always be gently expelled from the syringe after removal of the needle; too forceful expulsion of blood through the hypodermic needle was shown to be the cause of most of the unsatisfactory specimens from

the group of white college students (Table II). Last but by no means least is the importance of information pertinent to the individual case accompanying each specimen. Brief histories giving patients' names (which are of course strictly confidential) not only permit the accumulation of valuable data on incidence of disease, and a necessary system for checking the efficiency of a laboratory procedure, but also make possible the intelligent selection in the laboratory of helpful examinations other than those requested.

West Virginia State Hygienic Laboratory

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SYPHILIS OF THE BONES AND JOINTS

By CLAUDE B. SMITH, M. D.
Charleston, W. Va.

FROM a review of the literature it becomes increasingly evident that syphilitic involvement of the joints is more common than ordinarily supposed, particularly in those cases which do not receive early and adequate treatment. In order to appreciate fully the multiplicity of lesions which may develop in the skeletal system and its associated structures one must realize that such conditions are due to the virus of syphilis locally implanted and not merely an arthritis or similar condition developing or occurring in a syphilitic subject. In general, it is considered that syphilitic conditions with which the orthopedist may be concerned occur in the secondary or tertiary stages. However, Keidel and others note that it is frequent in all stages of the disease, occurring in seven to eight per cent of all patients with syphilis, congenital as well as acquired. For this reason we will attempt a classification according to anatomical location as follows:

1. Joint Lesions:

a. In congenital syphilis: Synovitis, Osteochondritis.

b. In secondary stage arthralgia: Hydrarthrosis.

c. In tertiary stages: Gummatous, Arthritis.

2. Bone Lesions: a. Periostitis, b. Osteitis, c. Osteomyelitis, d. Osteochondritis, e. Dactylitis.

3. Tenosynovitis. 4. Bursitis.
5. Myositis. 6. Charcot joints.
7. Syphilis and trauma.

The condition outlined above present sufficient similarity in signs and symptoms to allow for a general discussion of their common diagnosis. A number of these conditions have been described as painless; however, at least in certain stages, pain and swelling are often the cardinal symptoms. In addition, the skin manifestations are simultaneously present in a large number of cases. In involvement of the joint, the joint fluid is a greenish-yellow and in character resembles that of gonorrheal-arthritis and, on standing, there is a greenish flocculent participitate which has been said by some writers to be pathognomonic. The value of joint fluid Wassermann seems to be in question. However, it is a valuable aid and a review of the literature reveals numerous cases in which a positive joint fluid Wassermann has been present with a negative blood Wassermann.

Chesney describes a high lymphocyte large mononuclear count in the joint fluid which he considers of probable value in the differential diagnosis. As has been noted above, swelling is always present; pain is a cardinal symptom even if late and is usually nocturnal in character. In early syphilis the association of other lesions points definitely to a correct diagnosis in an existent pain or swelling related to the bones and joints.

RHEUMATIC SYMPTOMS

Keidel also notes frequent brawny edema of the feet and legs with pain and difficulty in walking associated with secondary syphilis. Another frequent picture is that of "rheumatism" of long standing with pain, disability which may be mild or marked, limitation and pain on motion or palpation with practically no objective signs to account for it. In fact, the picture is that commonly associated with chronic arthritis. It must be repeated that the blood Wassermann in these cases is frequently positive but may be negative. Diagnosis often depends upon the therapeutic test, namely, relief of symptoms after a few antisyphilitic treatments, this being a justifiable procedure in all questionable cases. In congenital syphilis we note that the osteochondritis presents on x-ray a saw-tooth irregularity of the epiphyseal line, cupping of the metaphysis in addition to the other general signs of syphilitic joint involvement.

In addition, the conditions analogous to those presented in adults are frequently met with in children. The arthralgia which is the most common joint manifestation in acquired syphilis needs no discussion.

The hydrathrosis may present a simple synovitis with or without pain or plastic arthritis. The tertiary lesion is essentially gummatous arthritis which may be synovial or osseous in type and may often assume the characteristics of rheumatoid arthritis with fusiform swelling of the fingers, pain, intermittent temperature with exacerbations and remissions.

Syphilitic disease of the bone occurs both in the secondary and tertiary stages but is most common as a late manifestation. In the periostitic form it presents a localized swelling of the shaft, (so-called sabershin being a typical example) and presenting, first, a thickening and increasing vascularity of the periosteum and later calcification with a typical x-ray picture.

The osteitis is a chronic inflammation developing diffusely throughout the shaft inside the periosteum. There is deep-seated pain which is worse at night. The bone is densely sclerosed and as a late manifestation it spreads outward and inflammation of the periosteum and soft parts appears.

The osteochondritis which is seen in congenital syphilis during the first months of life often causes a pseudoparalysis as a result of the concomitant pain. The x-ray pictures and other features have already been noted.

The osteomyelitic form may occur on the surface or on the interior of the bone and may produce sequestration. In the interior of the bone it resembles sarcoma and may be responsible for a spontaneous fracture. These characteristics necessitate careful röentgenographic interpretation and thorough study before such diagnosis is made.

DACTYLITIS IMPORTANT

Dactylitis is chiefly important in that it may be taken for tuberculosis and occurs chiefly in children and may affect any of the toes or fingers with marked shortening and deformity, with thickening increased density and even absorption of the bone. Open sores may form but the tendency to break down and ulcerate is not as great as in tuberculosis.

The tenosynovitis of syphilitic origin is usually mild, presenting a symmetrical painless swelling of the tendon sheath, usually bilateral. In later stages an infiltration of the sheath may be seen. The clinical signs are otherwise not distinctive. The diagnosis depends on the other manifestations of syphilis.

Bursitis of luetic origin is most commonly seen in the popliteal and other bursae which

are likewise frequently subject to non-specific inflammation and present a painless or mildly painful swelling, and effusion into the bursa with a tendency to break down and form chronic sinuses.

Myositis of a diffuse character with swelling and possible pain or tenderness may occur either in "tertiary" syphilis or in the congenital form. In addition, myalgic pains without demonstrated local signs are common in early syphilis.

ARTHROPATHY OF CHARCOT JOINTS

The arthropathy of charcot joints is given separate consideration due to the general opinion that its mechanism of production is on a "trophic" basis and not evidenced by a local infiltration of the virus. These changes are commonly associated with tabes dorsalis, although it may occur in syringomyelia. It has been noted by various writers that the blood serology is frequently negative in contrast to tabes without joint changes, although the other neurologic evidences are present. Any joint may be affected; however, those most commonly involved are the foot, ankle, knee, hip, spine, and shoulder in that order. The condition first presents an increase in fluids in the joint with relaxation of the ligaments and swelling of the periarticular soft parts, as well as crepitus. As the condition progresses, hypermobility develops with increase in lateral motion. The articular surface becomes erroded. There is an accompanying formation of new bone. The joint becomes in time a loose sack filled with fluid containing bone fragments and detritus. Manipulation is usually painless. The characteristics evidenced as noted above are equally characteristic on x-ray.

No discussion of the syphilis of the skeletal system would be complete without mention of the relationship between syphilis and trauma. Opinion is divided as to the rôle played by syphilis in non-union of fractures. Henderson and others feel that syphilis cannot often be considered a factor in non-union. Estes and others report cases of non-union in syphilitic individuals in which union in some cases at least has occurred after treatment. The writer recalls one case in which a young white male in the "twenties" received a simple fracture of the tibia and fibula which after reduction united normally. Approximately two years later he suffered a similar fracture of the opposite tibia and fibula in which non-union occurred, the fractures being treated by the same method, but the patient had acquired syphilis in the interim. Anti-syphilitic treatment was given beginning shortly after the second fracture. This point is of a special importance in industrial practice and would indicate the advisability of routine blood examination on all traumatic cases since Klauder has pointed out in connection with compensation cases that the courts have held that the fact that the workman has pre-existing disease does not alleviate the responsibility of the employer for injury, disability, or death indirectly due to syphilis.

SWIFT-ELLIS METHOD RECOMMENDED

In general, the treatment need not be gone into here inasmuch as it is essentially that of the stage of syphilis in which the bone or joint involvement occurs with due regard for co-existing manifestations elsewhere. However, for a special consideration Keidel recommends the Swift-Ellis method in Charcot joints and also six to eight weeks of intensive treatment before any operative procedure, and the treatment to be continued after operation.

The management of Charcot arthopathy is in general rest and immobilization with splint or braces. Arthrodesis often is followed by union but some writers have indicated good results in early cases, sufficiently so to justify this procedure in selected cases. Amputation may at times be necessary because of instability, but it should be remembered that the same factors which produce the arthopathy often prevent healing of the amputation stump. Operative treatment is most satisfactory in those joints such as the spine where

extra-articular arthrodesis may be due to spanning the affected bone from healthy bone to healthy bone with a graft.

1. The virus of syphilis may invade and produce characteristic changes of varying magnitude in any part of the musculoskeletal system.

2. Such syphilis may so closely resemble chronic rheumatoid arthritis as to justify serological study of all cases so diagnosed.

3. Joint fluid Wassermann in suspected effusion is advisable in addition to blood examination. Occasionally at least it is positive when the blood is negative.

4. Diagnosis of chronic bone and joint pains of obscure or undetermined etiology may be so difficult as to necessitate a therapeutic test with anti-syphilitic treatment.

5. The relationship of syphilis and trauma, while controversial, justifies blood examination of all traumatic cases and a period of treatment before operative procedure.

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THE EARLY DIAGNOSIS OF SYPHILIS IN THE FEMALE

By RAY M. BOBBITT, M. D., IVAN R. HARWOOD, M. D. and J. FRANK BARKER, M. D.
Huntington, West Virginia

In our study of the incidence and prevalence of syphilis, its communicability, and modes of infection, it has occurred to us that the difficulty of early diagnosis in the female plays an important part in the control of this disease. We believe that only a very small percentage of those who have syphilis would deliberately expose another individual and the frequent transmission is due either to ignorance of the presence of the disease or the assumption that their lesion is of no importance and is due to a "hair cut" or some other outside irritation. The fact that the primary lesion is often innocent in appearance and not painful or tender is most important in its recognition and transmission by the patient.

In the female the primary lesion usually occurs around the genitals, on the vaginal mucous membrane or upon the cervix. The lesion also occasionally occurs at the urethral meatus, or at the anus. We have seen two chancres in the female on the perineum. Of course, one must keep in mind that all non-healing extra genital ulcers are possibly syphilitic. We have seen a few chancres of the mouth, tongue, finger, and breast, and it is quite possible for one to occur any place on the body. When the lesion occurs on the labia or external genitals with its usual characteristics, it is often given little attention by the patient, who takes for granted it is due to some irritating vaginal discharge, rubbing of clothes, etc., but when it occurs within the vaginal vault or on the cervix, it is usually entirely overlooked unless the patient reports for examination, giving a history of exposure. These facts explain why such a large percentage of syphilis in the female goes undiagnosed in the primary stage, and unless the secondaries manifest themselves in a definite way it may not be diagnosed at all in the early stages. Since this is the period in which the disease is most communicable, it is easy to understand the difficulties of control.

In any female, particularly those reporting at venereal clinics for examination, with a history of exposure, or for that matter in doing any pelvic examination at any time,

the external genitals, vaginal vault and cervix should be inspected most carefully, remembering that the vaginal speculum may cover the lesion and that it is necessary to change its position to expose every portion of the vagina. Any suspicious ulceration should have a dark field examination, and it is our experience that spirochetes are more easily found from the primary lesion in females because of the lack of previous local treatment. If repeated dark fields are negative, a Wassermann test should be done, realizing that the test, even in the presence of syphilis will not become positive until from three to six weeks after the lesion has started. In dark field examinations of a suspected lesion, one negative report is quite useless and any physician is doing his patient a grave injustice when he will make only one examination, and finding that negative, tell his patient he does not have syphilis.

VARIANCE OF LESIONS

The syphilitic lesion varies as much as human individual characteristics differ. It is not common to see a lesion as described in text-books. We have found positive dark fields from the most innocent appearing lesion of the labia, one giving the appearance of a simple denuding of epithelium to the typical hard punched out ulcer as commonly described. Then we have seen several chancres of the vaginal vault which appeared as large necrotic, sloughing masses, with a hard indurated base, suggesting cancerous tissue. In the past six months we have seen several lesions of this type; in one we were able to get a positive dark field, in three others dark field examination was unsatisfactory, but routine bloods taken at the time first seen were negative. With repeated local treatment and no sign of improvement, the third week blood still being negative, we started these patients on bismuth intramuscularly. There was immediate response in local healing and by doing blood Wassermanns each week, three of these patients after two or three bismuth treatments had positive Wassermanns and responded to treatment. There was only one patient whose lesion was of this type, who had five injections of bismuth with local healing and never a positive Wassermann. This patient is going ahead with antiluetic treatments. She herself asked that she have a full course of treatments, even though our only proof of syphilis is that the patient responded to antiluetic treatment when other treatment failed.

ALLOW TIME AFTER MEDICATION

In doing dark fields one must first make certain that 24 hours have passed since the lesion has had any local medication. We instruct the patients to wash the parts with warm soap and water, next we remove excess scab formation and any necrotic tissue with a sterile normal saline solution, leaving a saline sponge held in place over the lesion four or five minutes. We attempt to get patients in a position so that the ulcer is horizontal with the ground, so that exuding serum will collect in a small pool, then with the pipette that has been drawn out to a one m.m. diameter the serum is aspirated several times with the end of the pipette at the edges of the ulcer. The serum is then placed on a slide, covered with a cover slip, and then studied under the microscope fitted with the dark field lens for a period of 30 to 50 minutes if necessary. We make two smears each day for three days and if after six dark field examinations we have been unable to find any spirochete pallida we start local treatment and do blood Wassermanns at regular intervals for a period of six weeks and again at the end of six months.

The treponema pallidum is not difficult to recognize, after one has seen it a few times. India ink, Fontana and Giemsa stains may be used. Treponema may be cultured in special media. Spirochete refringens is the only spirillum usually necessary for differentiation. In this organism spirals are much larger, have seven to eight spirals and assume many shapes; the treponema pallidum has ten to twelve spirals and is straight, the movements suggesting a wire spring being twisted upon itself.

The patient should be kept under careful observation for a secondary rash, enlarged lymphatic glands, mucous patches, etc., because the early recognition of the disease not only gives the patient a better chance for a cure, but greatly lowers the incidence of transmission. The patient should also be instructed not to have sexual contact.

In our opinion the control of syphilis depends to a very large extent in the early diagnosis in the female and we believe this objective can be reached in three main ways.

1. More careful local examination and observation of patient by the physician.

2. Having all male patients with early syphilis report the contacts and arranging an examination.

3. Education of the public as to the characteristic findings and symptoms in early syphilis, with particular reference to the primary lesion.

THE DIAGNOSIS AND TREATMENT OF PARESIS*

By A. L. OSTERMAN, M. D.
Wheeling, West Virginia

While it would lead entirely too far afield to give a detailed history of paresis, it would certainly not be amiss to present a few of the pertinent historical data of this organic mental disease caused by syphilis. To the English anatomist, Thomas Willis, goes the distinction of having been the first to give a description of the pathology of the disease which we now term paresis (1672), a description which antedated our Revolutionary War by more than one hundred years. While Bayle, in 1822, gave the first clinical history of symptoms, it remained for Esmark and Jessen in 1857, first to suggest syphilis as the cause of paresis. In preWassermann days, Fournier and Kraft-Ebbing were among the most famous adherents to the belief that syphilis played the etiological rôle in the production of paresis.

In 1906, after the discovery of the Wassermann test, the blood Wassermann reaction of untreated paretics was found to be 90 to 95 per cent positive. In 1908, after Plaut applied the principles of the Wassermann reaction to cerebrospinal fluid, this spinal fluid Wassermann test in untreated paretics was found to be 100 per cent positive for all practical purposes. The final and incontestable proof that syphilis was indeed the causative factor in paresis was not adduced until 1913, however, when Noguchi and Moore, working at the Rockefeller Institute, isolated the treponema pallidum from the brains of paretics.

The word "paresis" (pronounced correctly by accentuating either first or second syllable) is derived from two Greeks words: the prefix "para" meaning "from" and the verb "hienae", meaning "to send"—literally then—"to send from" or "to let go." The term aptly describes the weakness and paralysis of the musculature in the terminal stage of the disease. The terms "general paralysis of the insane", while fairly descriptive, is too general and has become obsolescent. This term is no longer recognized in the standard classification of the American Psychiatric Association.

The importance of paresis in modern syphilologic practice is at once apparent from certain statistical data as to its incidence. Pilez has reported an incidence of 4.8 per cent of paresis of 4,134 syphilitic Austrian army officers, whereas Pusey reported an incidence of 2.5 per cent among 1,178 cases of syphilis studied by him. On the conservative computation that three per cent of all patients who have general syphilis are potential paretics and, if it be admitted that there are at

*From the Medical Division of the Wheeling Clinic.

least 5,000,000 people afflicted with syphilis in the United States, it can readily be seen that we have 150,000 actual or potential paretics in the United States at this writing. Further, it has been estimated that there are 100,000 people in West Virginia who have syphilis; on this basis, we should have 3,000 cases of actual or potential paresis within the confines of our state.

The importance of paresis in its relation to psychiatry is embodied in the statement that approximately 10 per cent of all first admissions to state mental hospitals and private sanitoria are paretics. The importance of paresis as a cause of death can be surmised from a survey of vital statistics of the Metropolitan Life Insurance Company which state that paresis and tabes operate as causes of death in 13.1 to 16.6 per cent of 100,000 general population.

SEXUAL DISPARITY

The sexual disparity in the incidence of paresis is well known. Paresis occurs four to five times more frequently in men than in women, or in the proportion of nine men to two women, according to Stokes who quotes the Furbush Survey for the National Committee for Mental Hygiene. This disparity is in part owing to the higher incidence of general syphilis in men, inasmuch as general syphilis is twice as prevalent in men as in women, and in part to the protective biologic rôle which pregnancy plays in women.

To some, it may seem surprising that no more than three per cent of the cases of general syphilis develop paresis. There may be four factors which operate against a higher incidence: (1) Early and more accurate methods of diagnosis of syphilis; (2) more efficient, prolonged, and intelligent treatment; (3) natural and induced resistance on the part of the host, and (4) finally, the probability that there may be only certain strains of the spirochete pallida which are neurotropic.

The diagnosis of paresis is accompanied by no insuperable difficulties on the part of an observant examiner. This diagnosis can reasonably be discussed from three viewpoints: (1) the clinical history and anamnestic data; (2) the objective neurologic evidence or signs; (3) the serological survey.

THE CLINICAL HISTORY

It will be recalled that paresis usually makes its appearance gradually and insidiously some eight to twenty years after the initial chancre. Its onset occurs predominately between the ages of thirty-five and fifty years, at a time when the individual is at the peak of his economic power. The presenting early symptoms may be neurastheniform and may be no more than increasing fatigability, irritability, lack of ability to concentrate, absent mindedness, lack of retentiveness for recent events, and general unreliability. Lability and effervescence of the emotions and a definite change in personality supervene. Insomnia, vague gastric and other hypochondriacal symptoms, headache, lack of mental alertness, tendencies to worry and to lose weight are all common. As the disease becomes more obvious, impairment of judgment, errors in business or financial matters, the lapse of insight, and the development of fantastic, bizarre, paranoid, or grandiose delusions are remarked. The patient's conduct is marked by violent fits of anger, sexual excesses, and abuses, drinking or similar unconventional escapades. He becomes inattentive to his work, deteriorated and dilapidated in dress and manner, and he may have occasional transient aphasic or amblyopic attacks. All these symptoms in the earlier stage of paresis may occur over a period of several months to three or four years.

When paresis has definitely become established, it may clinically become divided into some six, more or less distinct forms, according to the conduct, character of the delusions, and course of the disease:

1. An acute fulminating form which runs a rapidly fatal course within three to six months has been described by Stokes. This type of the disease is characterized by a course

reminiscent of encephalitis or by a rapid succession of apoplectiform or epileptiform seizures, each recurrence of which leaves a further mental debasement in its train. Fortunately this type is not common.

2. The basic prototype or the simple dementing form in which the patient shows gradual mental deterioration, increasing dullness and lack of insight, a gross memory defect, and ultimate dementia. Here delusions and psychotic symptoms are rare. This is the most prevalent type of paresis and the one generally most susceptible to the malarial therapy. This type of paresis may endure for five to twenty years and runs a relatively benign course compared with the other groups.

3. The grandiose form which, because of the striking delusional content of boundless wealth and fantastic ideas of physical strength or attributes was first described and is most easily recognized. The euphoria and elation of the patients and their flight of ideas with sound association are to be remarked. Twenty per cent of all cases of paresis belong here.

4. The manic form or affective type of paresis mimics closely the attributes of the mania of manic-depressive psychosis. These violent, maniacal, excited types may survive three to five years.

5. The depressed and agitated form may show suicidal intent, the depression, and agitation seen in mixed manic-depressive cases or involutional melancholias. These patients, in the absence of self-destruction, may live three to five years.

6. The paranoid form characteristically shows ideas of reference and delusions of suspicion and persecution.

SEIZURES LEAD TO PARALYSIS

At the full, florid development of paresis of any type, epileptic or apoplectiform seizures denote the beginning of the final catastrophic end which leads, in untreated cases, almost surely to eventual paralysis of all extremities, lack of sphincter control, a vegetative, bedridden existence with the development of decubitus ulcers and ultimate death from intercurrent infection, inanition, or exhaustion. Relatively rarely and infrequently, the deteriorative course of paresis may be interrupted by spontaneous remissions. These are short lived, generally enduring from a few months to a year. They may exceptionally endure one to two decades. Remissions occur perhaps in five per cent of cases. This author has observed only one spontaneous remission in ten years of experience.

OTHER TYPES

There remain three types of paresis as opposed to the above forms which must be mentioned in passing: (1) Juvenile paresis; (2) senile paresis, and (3) paresis sine paresi.

Juvenile paresis develops in the congenital syphilitic child. It makes its appearance generally between the ages of five and twenty years. The form which is most commonly encountered is the simple, dementing type. Mental dullness, failure in school and conduct disorders serve to attract attention to the child. Juvenile paresis is notoriously and singularly resistant to any type of therapy by malaria, artificial pyretotherapy of any kind, or heavy metals. It is uniformly fatal.

Senile paresis is merely that type of paresis which begins to manifest itself late in life, generally after fifty-five or sixty years of age. It is readily confused with arteriosclerotic or senile dementias but has the typical serology and neurology of paresis. It is generally rapidly fatal (one and one-half to two years) and yields poorly to treatment of any kind. Here pyretotherapy is contraindicated because of the degenerative changes of advancing years.

"Paresis sine paresi" ("paresis without paresis") is an apt term originated by Soloman and applied by him to those cases of syphilis which have the serology of typical paresis but which have a long asymptomatic period. The serological picture persists despite vigorous treatment and all such cases are to be regarded as potential paretics and should be treated as such.

The objective signs and neurologic examination:

There are few instances of paresis in which

there are no objective neurologic findings. The more usual findings may be presented conveniently as follows:

I. Gait: The gait early is normal; later ataxic, uncertain; walking upon a broad base is frequent.

II. Facies: In well established cases, the face may become more coarse in appearance, show flattening of the nasolabial fold and looseness of facial musculature. The expression is vacuous and less expressive.

III. Cranial nerves: 1. Olfactory nerve—anosmia or dysosmia are common.

2. Optic nerve—pallor of the optic disc and optic atrophy may occur in 25 per cent of cases.

3. Oculomotor—the importance of the pupillary reflexes cannot be overemphasized because approximately 75 per cent of cases of paresis will show a deviation of the pupillary reflexes from the normal. The alteration in pupillary reflex is fairly early and may antedate frank mental symptoms by years. Perhaps the earliest pupillary change is the loss of the consensual light reflex—the spontaneous contraction of one pupil from which light is directly excluded when light is directed at the other pupil.

LOSS OF CONSENSUAL REFLEX

The loss of the consensual reflex may be followed by sluggish reactions of one or both pupils in their reaction to light. Ultimately the complete abolition of all pupillary reaction to light ensues in about fifty per cent of cases so that the stiff rigid Argyll-Robertson pupil results. Anisocoria and pupillary irregularity are frequent.

White, from his observations at St. Elizabeth's Hospital in Washington, D. C., gave the relative frequency of pupillary anomalies as follows:

Argyll-Robertson pupils in 54.4 per cent of cases.

Sluggish pupillary responses in 28.3 per cent of cases.

Normal pupils in 26.3 per cent of cases.

In 300 cases of paresis quoted by Solomon: 78 per cent showed altered light reflexes, 68 per cent showed pupillary inequality, 52 per cent had Argyll-Robertson pupils, and 39 per cent had irregular pupils.

Further, it is to be noted several anomalies such as irregularity, inequality, and sluggishness may be observed in the same set of pupils.

Transient paralyses of the external ocular muscles, involving the oculomotor as well as the trochlear and abducent nerves may occur. Trigeminal neuralgia is rarely associated with paresis. Other cranial nerves are seldom involved.

IV. Cortical functions: Tremor of the facial muscles, extruded tongue, or extended fingers is a matter of frequent observation in the well defined case. This tremulousness, of course, is due to the organic changes in the motor cortical centers for face, tongue and hands.

V. Speech disturbances: There may be a slurring, thickness, and elision of speech, first apparent upon rapid speech. These may be attended by deviation in modulation of voice. Distinctness in pronunciation of labial sounds is often lost.

VI. The reflexes: The deep tendon reflexes are characteristically increased early at the time of the invasion of the motor cortex. Later hyperactive, normal, or hypoactive reflexes may appear. The superficial abdominal reflexes may disappear, but the plantar reflexes are retained. Pathologic reflexes in the extremities such as the Klippel-Weil, the Babinski and its modifications are rare.

VII. Muscle strength and status: Where well established, paresis is marked by loss of muscle volume, contour, and strength. The weakness progressively leads to paresis and eventually complete paralysis. Myotatic irritability is decreased; atrophy and hypotonia are the rule.

VIII. Tests of coordination: The finer coordinative movements may become impossible as the disease advances.

IX. Station: The Romberg is generally positive in all its modifications.

X. Skilled acts—Writing: Dysgraphia in the nature of tremulous, uncertain, difficult writing, uneven as to alignment upon paper is frequent. Misspellings and improper punctuation denote cortical disorganization.

XI. Sensation: The sensory modalities are generally intact in all directions. Mild degrees of hypesthesia may occur.

XII. Meningeal signs: These are generally lacking by gross tests such as the Kernig, Lasegue, or Brudzinski, or stiff neck.

XIII. Cerebellar signs are usually missing.

XIV. Abnormal involuntary movements: The characteristic tremor of face and tongue have been mentioned. Focal Jacksonian movements in face and upper extremity of same side occur. Epileptiform or apoplectiform seizures are late developments.

THE SEROLOGY

The characteristic serologic picture is the third member of the paretic diagnostic triad. The blood Wassermann in the untreated paretic is strongly positive, usually four plus in 90 to 95 per cent of cases. The quantitative Kolmer Wassermann will give complete hemolysis in the first three or even four tubes or a characteristic reading of 44432.

The study of the spinal fluid is imperative. The spinal fluid is usually clear and its pressure will usually vary from 50 to 180 mm. of water. The Kolmer spinal fluid Wassermann is strongly positive universally—100 per cent of cases. So strongly positive is the reaction that .05 c.c. of spinal fluid will give a positive reaction often, .2 c.c. of spinal fluid a four plus reaction practically always. The Lange's colloidal gold curve shows complete reduction in the tubes to the right, giving typically a value of 5554432100.

Because the gold preparation is more expensive and less stable in keeping qualities, Guillain, Laroche, and Lechelle have invented the colloidal benzoin test while the German, Emanuel, has produced the colloidal mastic test. The colloidal benzoin test will give a value in fifteen tubes of 333,333,-333,000,000, characteristically, while the colloidal mastic reading in five tubes may be 55430.

While the strongly positive Wassermann reaction in blood and spinal fluid and the paretic formula in colloidal suspensions are most remarkable, the cell count, globulin, and total protein content of spinal fluid are worthy to be noted. The cell count is usually under 25, but may vary from none to several hundred (400). The intensity of the meningeal phase is naturally indicated by the increase in cell count. These cells are small lymphocytes. The Ross-Jones or Pandy tests for globulin may show a globulin increase from one plus to four plus; the more active the paretic process is, the greater the globulin increase. Total proteins of spinal lumbar fluids are increased from 60 to 150 milligrams per 100 c.c.

MODERN TREATMENT OF PARESIS

Prior to the introduction of therapeutic malaria in the treatment of paresis by Julius Wagner von Jauregg, at the Pödzl Clinic in Vienna in 1917, there was in reality no satisfactory treatment of paresis, and it was uniformly fatal except for those rare cases of prolonged, spontaneous remission.

Since the introduction of therapeutic malaria in 1917, uniformly good reports of its action in paresis have been received from all over the world. Malarial therapy was first employed in the treatment of paresis in the United States by White at St. Elizabeth's Hospital in Washington, D. C. Insofar as we have been able to ascertain, therapeutic malaria was first introduced into West Virginia at Wheeling at the Ohio Valley General Hospital in 1926, by the author's colleague, W. M. Sheppe.

The present day treatment of paresis may be divided into two great classes: (1) the chemical therapy, and (2) pyretotherapy, or a combination of the two, which quite often approaches the ideal. The following scheme of methods of treatment is advanced for its simplicity:

I. Chemical therapy:
   1. Tryparsamide and the heavy metals.
   2. Acetarsone or stovarsol.
   3. Silver arsphenamine.

II. Pyretotherapy:
   1. Bacteriologic agents:
      a. Malaria.
      b. Typhoid vaccine.
      c. Sodoku or rat-bite fever.
      d. Relapsing fever.
      e. Rickettsia.
   2. Non-bacteriologic, physical agents:
      a. Diathermy.
      b. Radiothermy.
      c. Electric blanket.
      d. Electric cabinet.
      e. Hot baths.
      f. Kettering hypertherm or inductotherm.
      g. Sulphur in oil injections.
      h. Injections of boiled milk or other foreign protein.

CHEMICAL THERAPY

It must be admitted at the outset that chemotherapy of paresis alone is untenable and generally not productive of the best results. The only chemical agent of value is the white, crystalline, pentavalent, arsenical known as tryparsamide. One to three grams of tryparsamide, dissolved in 20 c.c. of distilled water, given intravenously once every five to seven days for ten injections. Such a series constitutes one course of tryparsamide. Several such series, alone or in conjunction with a heavy metal are given over a period of three years. While tryparsamide alone may cause clinical remissions in paresis, it is best administered as adjunct therapy with malaria or other type of pyretotherapy. In his "The Modern Treatment of Paresis" J. E. Moore quotes 81 cases of paresis treated with tryparsamide with an arrest of the disease in 42 per cent of cases, partial improvement in 29.6 per cent of cases, and no improvement in 22.2 per cent of cases. In the same cases a serologic improvement to the point of normalcy occurred in 53.8 per cent of those treated. The action of tryparsamide is not entirely understood, but it probably serves as a direct, powerful stimulator of resistance to syphilis in the central nervous system of the host; it has little direct spirocheticidal action.

Acetarsone, or stovarsal, has been recommended in the treatment of nervous system syphilis, including paresis. This arsenical is still on trial and it has still to be evaluated. Silver arsphenamine is said to have a strong deterrent action on central nervous system syphilis, but at this writing the drug has not proved of great value in paresis.

TREATMENT BY FEVER INDUCTION

The treatment of paresis by the induction of fever in the affected host has been the unanimous method of choice during the past two decades. Among these methods, the original one and the one most tested by the passage of time and indeed the most trustworthy from the number of permanent arrests of cases is certainly therapeutic malaria. This is the only method with which the author has had any extensive personal experience.

In the induction of artificial malaria three to five c.c. of malarial blood are injected intravenously, occasionally intramuscularly in the patient to be treated. The author recommends the direct and immediate inoculation of the patient from the donor rather than the use of citrated malarial blood containing a small amount of glucose because much higher percentage of successful "takes" results. While the citrated blood may be used twelve to twenty-four hours after the withdrawal from the donor, a high degree of failures of inoculation results. The securing of the blood for inoculation just before or during the early stages of a malarial paroxysm is recommended since more of the plasmodia are available per cubic millimeter in the peripheral circulation. A single strain of benign tertian plasmodia is preferable since the malarial attacks will then ensue on alternate days. Many of the author's cases have been inoculated with a double strain of the tertian parasite—a contamination, no doubt, from repeated transferences from host to host, and so the patient has been

deprived of the much needed interval rest day. If possible, the therapeutist should secure the same strain of malaria and so learn its various idiosyncrasies. Some strains of malaria are so virulent that their use is precluded because of excessive, malignant temperature elevation of 108° to 110° F.

After inoculation, a latent period of incubation of three to sixteen days, generally five to ten days, occurs. Then the patient is permitted to have ten to fourteen paroxysms of malaria, most of which are preceded by a chill of fifteen to sixty minutes' duration, during which the temperature becomes elevated at the rate of one degree every fifteen minutes. A fastigium of 104° to 107° F. (rectal) maintained for three to six hours, is desirable. During the period of chill, external heat, blankets, hot water bottles and warm drinks are applied in an attempt to make the patient as comfortable as possible. During the temperature elevation, no attempt should be made to combat the febrile reaction. At 107° rectal, an ice cap may be applied to the head. In the stages of defervescence and excessive sweating the patient must be kept as dry as possible. The patient should be hospitalized and carefully observed and nursed during the entire period of active treatment.

WHEN TO TERMINATE MALARIA

There are three important criteria which serve to determine when the malaria should be terminated:

1. The blood pressure and general condition of the patient. The systolic blood pressure should ordinarily not be allowed to drop between 85 to 90 mm. of mercury in the interparoxysmal period. Should the systolic pressure be below 80 mm. of mercury, and the patient's general physical condition weak and unsatisfactory, the facies pinched, pale, and drawn, the pulse rapid, the patient dehydrated—interruption must be at once instituted.

2. The degree of anemia: Should the red blood cells and hemoglobin fall below fifty per cent of their normal volume, interruption must be considered.

3. Elevation of the blood urea nitrogen indicates endogenous cellular destruction and should not exceed twice the maximum normal value—30 to 35 milligrams per 100 c.c. of blood ordinarily.

Special complications such as severe phlebitis, acute and excessive hepatic or splenic enlargement, repeated hemorrhages from gastrointestinal mucosa or shock, demand interruption at any time.

METHOD OF INTERRUPTION

The interruption of the malaria is initiated by the author by the slow and cautious intravenous injection of a single dose or at most, two doses of a one per cent solution of quinine dihydrochloride, (five to ten grains). Following this initial dose, quinine sulphate grains ten is administered three times daily for ten consecutive days. Aside from this specific therapy, the further treatment has been supportive as follows:

1. The use of elixir of iron, quinine, and strychnine as a bitter tonic for the poor appetite.

2. The use of vitamin B pulvules (Betalin compound) by mouth or of Betaxin intramuscularly for the same purpose.

3. The employment of glucose 10 per cent, in normal saline, 500 to 1000 c.c. intravenously for correction of dehydration for several days.

4. The use of iron—Feosol tablets or Blaud's pills, two, three times daily.

5. The use of a blood transfusion from a suitable donor if such a measure appears necessary for a severe secondary anemia.

6. The use of atebrin or plasmochin for those rare cases of quinine resistant malaria.

7. The urging of water, forcing of foods, and good, adequate nursing measures.

The mortality of malarial therapy in paresis is said to be about five to ten per cent by Oxford Medicine, 10 per cent by J. E. Moore in his massed statistics of 5,000 cases. The author in his relatively small series of 48

cases (since 1929) has not had a single fatality as the direct result of the malarial method.

2. Typhoid vaccine: A decade ago, typhoid vaccine was given intravenously to evoke febrile attacks in paresis. Twenty-five million bacteria were given intravenously as an initial dose. This dose was generally doubled until fairly satisfactory elevations were obtained. Vaccine therapy has now largely fallen into disuse, even disrepute. This author tried this method in several cases with disheartening results.

3. Sodoku or rat-bite fever has been much employed in Japan where this spirochetal disease is endemic. This rat borne disease is transmitted by the bite of the vector, infected with the etiologic agent—the spirillum minus. The paretic patient is inoculated by blood drawn from an infected host. The patient is then allowed to have several bouts of this recurring fever. There are two or three days of moderately high fever, two or three days of rest, then a recurrence of two or three days' fever, etc. The disease is interrupted by the specific action of intravenous salvarsan.

4. Relapsing fever has been used with good results by Plaut and Sleiner. Relapsing fever is also a spirochetal disease which is transmitted by the bite of an infected louse or tick. This disease runs a typically relapsing course. There are two to seven days of fever, with a fastigium of 104°, then a remission of about a week, only to be followed by a two to seven day recurrence of fever, etc. The course of the disease may be interrupted at will by as little as a single dose of salvarsan.

5. Rickettsial diseases have been employed in the treatment of paresis by a few investigators. Their use is generally not favored.

MECHANICAL DEVICES

On the theory, now generally regarded as incorrect, that the fever production alone was the important agent in the malarial arrests of paresis, in the past eight or nine years, many investigators have brought forward mechanical or electrical devices for the production of any temperature elevation desired in paresis. Primary among these have been diathermic apparatus and the inductotherm. These devices are said in many quarters to give results quite comparable to those obtained by malaria.

1. Diathermic treatment: C. H. Neymann and S. L. Osborne in 1929, and J. C. King and E. W. Cocke were among the first to use diathermy in the production of artificial fever for therapeutic purposes in paretics. In this method, high freqency currents are passed between electrodes applied to the surface of the body of the patient who is insulated in a bag which will retain heat. The patient's temperature may be brought gradually to any reasonable elevation desired by the therapist. It would still appear to be a moot question as to how high the artificial temperature should go and how long maintained there. W. M. Simpson favors a higher temperature of 106° F. for five hours whereas C. T. Perkins favors 104° for four hours. Ten to twenty bouts of such temperature elevations are becoming routine.

RESULTS OF DIATHERMIC TREATMENT

The results vary considerably in the use of diathermy. These may vary all the way from the fifty case reports by Freeman, Fong, and Rosenberg (1933) in which not a single good result and only ten partial remissions were obtained to the very substantial claims of Neymann and Koenig who in fifty cases secured twelve good and 38 partial recoveries with diathermia.

In an interesting study, Epstein, Solomon and Kopp point out that relapse is more frequent after diathermy than malaria; that improvements or best remissions are obtained by malaria (45 per cent), next by tryparsamide (42 per cent) while only 27 per cent (648 cases in literature) show satisfactory remissions with diathermy; further, 37 per cent of malarial and tryparsamide treated paretics but only 22 per cent of diathermically treated cases have a normal spinal fluid after treatment. Finally, the longevity of malarial cases was greater than diathermic cases. These authors trenchantly state: "Diathermia is not in any sense a substitute for malaria. Its only

advantage is that it can be given in malarial refractive cases."

2. Radiothermy or ultra high frequency currents were first used by L. C. Hinsie and J. R. Blaloch in the treatment of paresis. In their article, "Electropyrexia in General Paresis", State Hospital Press, Utica, New York—1934, these pioneers reported better results with the ultra high frequency current, followed by use of tryparsamide than with malaria. Simpson, Kislig and Sittler (1933) have also reported favorably on the use of radiothermy plus chemotherapy (bismarsen, iodobismitol, or tryparsamide).

(3, 4, 5). The use of the electric blanket, electric cabinet, and hot baths have been largely superseded by the use of diathermia or the Kettering inductotherm.

(6) The Kettering inductotherm or hypertherm has been in use the past three to four years. The apparatus and the principles behind its use have been clearly advanced by Ebaugh, Barnacle, and Ewalt: "This apparatus is an air conditioned cabinet through which moist heated air is circulated by electrical blowers. Fever induction depends on two factors: (1) the transfer of heat by conduction from the circulating hot moist air and (2) the prevention of the normal loss of heat from the body by radiation and evaporation." The prescribed course of hyperpyrexia consists of 50 hours of an average temperature between 105 and 106° F. in 10 sessions of five hours each. The interval between each individual treatment is four to seven days. The above observers have given one to two grams of tryparsamide intravenously during the second hour of each temperature elevation, so that ten treatments of tryparsamide are given during the artificial fever therapy. Following cessation of the fever therapy, three grams of tryparsamide are given at weekly intervals.

On the basis of one year's experience in the treatment of 60 unselected paretic patients, in which 30 patients were treated by the above inductothermic and adjunct tryparsamide methods while the other series of 30 patients were treated by malaria and tryparsamide, Ebaugh et al, believe inductothermic methods give slightly better results than malaria. In the inductotherm series of 30 cases, 21 or 70 per cent of the patients were benefited, whereas among the 30 malarial cases, 19 or 63.3 per cent were improved. This author's criticism of the evaluation of these results is that the apparent difference in immediate results shows no great disparity (6.7 per cent); that the inductotherm cases have not been sufficiently further observed as to permanence of cure or percentage of relapses; that the ages of the inductotherm cases were younger than the malarial cases; and that only 9.9 malarial paroxysms were averaged per case in the malarial cases, some even much less—a rather low number of paroxysms. This author feels that the inductotherm is the best form of apparatus to use in artificial fever therapy in paresis.

ADVANTAGES OF ARTIFICIAL THERAPY

Since the appearance of devices for the production of artificial fever therapy in paresis, a definite schism as to the mode of treatment of paresis—whether better treated by malaria or by the mechanistic devices—has developed. Much has been written in defense of each method by able men. The advantages of artificial fever therapy plus tryparsamide as opposed to malaria plus tryparsamide may be summarized:

(1) Tryparsamide does not interfere with fever production.

(2) The prescribed dosage of fever can be regulated and controlled.

(3) There is no secondary anemia.

(4) The induction of a secondary disease is not necessary.

(5) Treatment can be promptly interrupted if complications arise.

(6) Emaciation of the patient is no contraindication.

(7) No splenic or hepatic damage results.

(8) Many patients need not be hospital-

ized and can even work between treatments.

(9) The mortality rate is somewhat lower, (exact figures lacking).

The disadvantages of artificial therapy may be considered as:

(1) More relapses after two years occur in artificial than malarial therapy.

(2) Uncooperative patients require narcosis during the entire period of treatment—four or five hours.

(3) Treatment requires a highly trained personnel in the hospital.

(4) The period of treatment—eight to ten weeks—is relatively long.

MALARIAL THERAPY ADVANTAGES

The advantages of malarial therapeusis are:

(1) Uncooperative patients do not require narcosis.

(2) Active treatment is relatively short—three weeks.

(3) Treatment does not require a highly trained personnel.

(4) Relapses are less frequent.

(5) Malarial therapy has been evaluated all over the world for twenty years and found satisfactory; mechanical or artificial hyperpyretic measures have been evaluated only three to seven years at most.

The disadvantages of malarial therapy must be conceded to be:

(1) The inability to regulate fever at will.

(2) The inability to use tryparsamide during active malarial therapy because of its disastrous effect upon the plasmodia.

(3) Some few patients are immune to malaria (only one in the author's series of 48 cases).

(4) Sometimes difficulty arises in prompt termination of the malaria when complications arise.

(5) Patients lose weight and strength and develop a secondary anemia.

(6) Induction of a secondary disease is imperative.

(7) Occasional chronic splenic or hepatic disease persists after malaria.

(8) Malaria requires hospitalization of the patient during the entire period of active treatment. However, Walter Freeman, Washington, D. C., has treated 30 to 40 paretics in their homes with malaria. This home treatment is not recommended by this author.

(9) Malaria therapy has a general mortality rate of five to ten per cent for the country at large. This is too high an estimate for skilled hands.

Epstein, Solomon, and Kopp gave some interesting data culled from the literature as regards clinical results from various methods of treatment:

CLINICAL RESULTS

	Arrested Cases	Partially Improved
(1) J. E. Moore's massed statistics, 5,000 cases	45.0%	25.0%
(2) Hyperpyrexia (artificial)—648 cases from literature	27.1%	40.1%
(3) Diathermy—33 cases	24.2%	33.3%
(4) Tryparsamide-81 cases	42.0%	29.6%

The following results were submitted by the same authors in their study and are of interest here:

Method	No. of Cases	Good Remissions	Partial Remissions
(1) Hot baths	11	2	4
(2) Diathermia and electric blanket	97	13	59
(3) Radiothermy	68	12	24
(4) Electric cabinet and typhoid vaccine	25	8	5
(5) Kettering hyperthermy	23	18	3

The use of sulphur in oil injections (7) and the intramuscular injections of boiled milk or other foreign protein (8) as practical measures for the hyperpyrexial treatment of paresis have proven too uncertain in paresis. Their use is obsolescent.

In conclusion, this author feels strongly that malarial hyperpyrexia, followed by tryparsamide, still affords the best all around measure to combat paresis. He is not un-

aware of many advantages attached to the artificial methods of fever production. Among these, certainly the Kettering hyperthermy would seem to be the most satisfactory method and the only one which gives results quite comparable with malaria. The author feels inclined to agree with the trenchant observation of Dr. Paul A. O'Leary of the Department of Syphilology, Mayo Clinic: "I have passed through the era of enthusiasm for the mechanical units which produce fever for the treatment of neurosyphilis and still feel that malaria is the superior method of the two."

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THE DIAGNOSIS AND TREATMENT OF CARDIOVASCULAR SYPHILIS

By R. J. CONDRY, M. D., F. A. C. P.
Elkins, W. Va.

THE incidence of cardiovascular syphilis has been estimated to be between ten and fifteen per cent and ranks second to rheumatism as a cause of infectious heart disease. Fortunately, however, being a preventable disease and as a result of closer attention to diagnosis and adequate treatment of early syphilis the incidence is beginning to wane, especially in some sections of the country. In one series it constituted but four per cent.[1] It is well-known that syphilitic cardiovascular disease may not present itself until some fifteen to twenty years after the primary infection and by the time the disease is recognized the damage has progressed to a serious condition. For these reasons and because the effects of syphilis on the heart and blood vessels can be prevented, it is extremely important that primary syphilis be adequately treated. Moore[2] has admirably shown the effect of treating early syphilis adequately by observing that when early syphilis is untreated the chance of developing cardiovascular syphilis is forty-five per cent, while if properly treated the chance is reduced to four per cent.

When syphilis does make its delayed attack it concentrates upon the aorta. The disease has usually developed far before the patient complains but when he does these complaints arise from one of four chief events, namely: 1. It weakens the aortic wall so that it dilates, or if it progresses beyond this phase the wall becomes aneurysmal; 2. It invades the commissures of the aortic valve producing an inefficiency; 3. It attacks the mouths of the coronary arteries, producing angina pectoris; and, 4. It produces either directly or indirectly a decline in ventricular efficiency.

LUETIC AORTITIS

This lesion is the most difficult of all to diagnose in its early stages and practically all the discussions center upon the recognition of

early aortic wall involvement. There may be no symptoms. If symptoms occur the two most common are pain in the chest and dyspnea. When pain occurs it is like that seen in disease of the coronary artery. It is usually boring in character and not brought on by exertion. Kemp and Cochems[3] have shown recently in a study of 1000 unselected syphilitics and 600 unselected non-syphilitics that teleröentgenographic studies alone of the supracardiac shadow gave no diagnostic proof of differentiation. Fluoroscopy and careful clinical evaluation of symptoms and physical signs are essential for the diagnosis. The blood Wassermann is positive in only seventy-five to eighty per cent and a positive test alone does not necessarily imply syphilis of the aorta. The electrocardiogram gives no help in this lesion. There are three signs, usually cited as evidence of early luetic aortitis:[4 5 6 7 8 9 10] 1. An aortic systolic murmur; 2. Accentuation or tympanitic or metallic note to the aortic second sound; and, 3. Increased retromanubrial dullness. Moore and Metildi[11] have by careful studies of 115 patients selected seven points upon which to make a diagnosis of uncomplicated aortitis. These are as follows: 1. Teleradiographic and fluoroscopic evidence of aortic dilation; 2. Increased retromanubrial dullness; 3. History of circulatory embarrassment; 4. Tympanitic bell-like tambour accentuation of the aortic second sound; 5. Progressive cardiac failure; 6. Substernal pain; and, 7. Paroxysmal dyspnea.

SYMPTOMS OF ANEURYSMS

When aneurysm occurs the diagnosis is more readily established. Although as Levine[12] points out, these may have only signs, only symptoms, or neither signs nor symptoms. Aneurysms usually manifest themselves by pressure on surrounding structures and these symptoms may include difficulty in swallowing from esophageal pressure, breathlessness, stridor and cough from tracheal pressure, and if erosion of the trachea occurs there may be bloody sputum. Tracheal tug is due to pulling on the left bronchus. Paralysis of the vocal cord is due to recurrent laryngeal nerve pressure, and if the left sympathetic nerve is caught and paralyzed there is a sinking in of the left eyeball and a narrow pupil. Sympathetic paralysis causes increased warmth to the affected side and inequality of the pupils. If there is erosion of the ribs and/or the vertebra there is severe pain and there may be compression of the lungs. The diagnosis is usually made by analysis of symptoms, signs, blood examination, fluoroscopic and radiographic studies of the cardiovascular system.

When the process in the aorta extends to involve the commissures of the aortic valve it produces aortic insufficiency. The recognition of aortic insufficiency is determined mainly by auscultation of the heart and consists of the following findings: A blowing diastolic murmur heard best at the second right interspace or along the left sternal border. This murmur has its onset with or immediately after the second heart sound and usually has wide transmission to the apex, left axilla, and to the neck. The murmur is better perceived with the Bowles type of stethoscope and as a rule with the patient upright and leaning forward. The peripheral signs, while not pathognomonic, are extremely helpful and consist of hyperactive pulsations of the arteries, a water-hammer quality to the pulse—the so-called Corrigan pulse, and Duroziez's sign. One must always keep in mind that rheumatic infection may likewise produce aortic insufficiency, and be prepared to disintguish between these two causes.

CORONARY SYMPTOMS

When the luetic process involves the mouths of the coronary arteries the syndrome of coronary disease with angina appears. All the possibilities exist that attend an inadequate coronary circulation. Anginal attacks may occur and sudden death is not uncommon. It is in these cases that the electro-

cardiogram may be a most important help in recognizing the seriousness of the process.

Luetic myocarditis is quite rare. When it occurs it may be either a localized gumma, and if the conduction apparatus is involved there may be complete heart block or there may be a diffuse luetic myocarditis which may lead to rapid heart failure.

It may be seen from the above that while the lesions of syphilis involving the heart and blood vessels may extend over a limited area, the effects may produce widespread symptoms and signs depending upon the structure or structures involved. Most of these effects have progressed too far to hope for cure by the time they are recognized. The early recognition and adequate treatment of uncomplicated aortitis is the key to the prevention of these more serious difficulties, but the ultimate solution is in adequate treatment of early syphilis.

TREATMENT NOT DIFFICULT

The treatment of cardiovascular syphilis is no longer a debatable and difficult problem, as was formerly supposed. The general rules of care hold here as elsewhere and should be followed. Special symptoms require special treatment, such as the nitrites for angina, analgesics and even narcotics for the pain of aneurysmal erosion. If and when the heart fails this should be treated as any other heart failure, including digitalis, dieuretics, etc. For intractable pain of angina or aneurysmal erosion paravertebral alcohol injections have proved beneficial. Total thyroidectomy is generally contraindicated. It is in regard to specific treatment of the syphilis that has led to disagreements and uncertainties. There are some who feel that no specific treatment should be given, while others are for forcing it vigorously. The wisest course undoubtedly rests between these two extremes. Evidence is accumulating rapidly that adequate treatment is desirable. Cole, et al.,[13 14 15] point out that among patients followed from three to twenty years, none of the more grave forms of cardiovascular syphilis developed if treatment was adequate in the early stages. Treatment definitely helped the outlook in 267 patients with uncomplicated aortitis and the duration of life was increased from thirty-four to eighty-five months with adequate treatment after detection of uncomplicated aortitis. This applies also to those with aortic regurgitation and with aneurysm. The following procedure for the administration of specific therapy in cardiovascular syphilis, though by no means the only method, has proved to be satisfactory. It is preferable to begin with mercury or bismuth and potassium iodine. Bismuth given in the form of the insoluble salt in the dosage of 0.1 gram every four days for four weeks, then a 0.2 gram weekly for another eight weeks. Potassium iodine, 15 grains three times a day, can be given with the bismuth. The drugs must be decreased in dosage or stopped if toxic symptoms arise. At the end of the first course of twelve weeks arsenic is added to the therapy. Neoarsphenamine is given in twelve weekly injections, beginning with 0.1 gram and increasing gradually to a maximum dose of 0.4 gram. Bismarsen may be used instead of neoarsphenamine in doses of 0.1 gram every five days, increasing to 0.2 grams per dose for twelve weeks. At the end of this second course one should return without pause to the use of bismuth and/or mercury as outlined above. These courses should be alternated for a minimum period of two years. After that one course of bismuth or mercury, followed by one course of neoarsphenamine, should be given annually for the duration of the patient's life.

DANGERS ENCOUNTERED

Moore[16] has called attention to the following dangers in the treatment of cardiovascular syphilis: It has long been known that the arsphenamines may produce during or immediately after treatment a syncopal reaction which may end in death, probably the result of ventricular fibrillation. This reaction may be due to the bulk of fluid injected and/or the size of the dose given. It is avoided by

using the less toxic products, such as neoarsphenamine or bismarsen, and in small doses. The second danger is any treatment reaction, such as mild neusea and even vomiting occurring after the injections. This likewise is avoided by small doses of the less toxic arsphenamines. The so-called Jarisch-Herxheimer reaction is a flare-up or intensification of the syphilitic process, and this reaction is especially serious in those instances of coronary orifice involvement and in aneurysms. This reaction may be prevented by the use of bismuth or mercury for a period of eight to twelve weeks before using the arsphenamines. The therapeutic paradox first called to our attention by Wile, consists of an initial period of improvement followed by the sudden appearance of congestive heart failure. The final danger is that of giving too intensive treatment of any type to a patient who has previously had or is in the midst of an attack of congestive heart failure. This risk is avoided by proper treatment of the heart before the use of antisyphilitic drugs.

Prolonged but not rapid specific treatment of cardiovascular syphilis, as advocated by Moore[16], results in a prolongation of life in two-thirds of patients even with saccular aneurysms of the aorta and aortic insufficiency. However, the most important consideration of all with respect to cardiovascular syphilis is that it is without doubt a preventable disease, therefore early recognition and thorough treatment of the initial luetic infection should practically wipe out luetic aortitis and its sequelae.

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STOMACH IN ACTION

"Tiny cameras which can be swallowed by the patient and which carry their own illuminating system have been used for photographing the interior of the stomach," Walter E. Burton discloses in his article "X-rays: A Way to Better Health Through Photography" appearing in the February issue of *Hygeia*.

Similar methods may be employed for making interior views of other body cavities. Furthermore, other methods have been worked out so that movies can be made of the vocal cords, the interior of the bladder, of the ear drum and other portions of the body.

Other startling innovations have been recently introduced in the field of photography that will greatly further medical research. Among them are actual color photographs of the interior of the eye, showing the optic nerve ending, blood vessels and other details. The pictures were taken through the crystalline lens and pupil of the eye, the pupil being dilated by drugs in order to provide a greater working area.

Infra-red photography has the ability to penetrate the skin and show details ordinarily invisible. While an ordinary photograph shows only surface details, the infra-red picture makes the subcutaneous veins stand out almost as clearly as if they were on the surface.

Infra-red waves penetrate the deepest pigment. A Negro, photographed with them, appears white, and although he may seem smooth shaven, he is seen to have a distinct beard, because the roots of the hairs in his face show!

WILLIAM SHAKESPEARE, SYPHILOGRAPHER*

By WALTER E. VEST, A. B., M. D., F. A. C. P.
Huntington, West Virginia

OLIVER Wendell Holmes is credited with the following classification of the genus homo: "There are one-story men, two-story men and three-story men. Fact collectors are one-story men. Two-story men reason about facts. Three-story men are those who are described as inspired men." Might he not as well have added also a four-story class, the genius, exceedingly rare numerically, but occasionally seen towering, as the lofty peak which rears its head in the clouds, far above the plains of the fact collectors, the foothills of the reasoners, and the mountain ranges of inspired men, the classes which in the aggregate compose the great continent of humanity? Such a four-story man was the great dramatic poet, William Shakespeare, who as the outstanding literary genius of the Anglo-Saxon race understood humanity and described human emotions, human activities and human relationships with a clearer perspective and a truer delineation than any other English writer. Ordinarily we think of Shakespeare as a great humanist portraying the emotions, love, hatred, ambition and cunning, but a close study of his works convincingly demonstrates the fact that he not only understood medicine and the medical knowledge of his day, but that he was in reality a medical seer, dipping into the future further than most of the practicing physicians who were his contemporaries. Essays have been written on his portrayal of the doctor, upon his knowledge of obstetrics, of materia medica, of psychology, of criminal insanity, of physiology, of biology, and of science in general.

We are not concerned here with the question of the American origin of syphilis and whether or not Columbus actually discovered both America and syphilis in 1492, but no one can question the fact that an overwhelming and very virulent epidemic of syphilis swept over Europe shortly after the great mariner returned from his first voyage. Probably the epidemic began to manifest itself in 1494 and it was of marked virulence by the spring of 1495 when the army of the youthful visionary, Charles VIII, occupied Naples. After Charles' disastrous retreat, and the scattering of his mercenaries who had been gathered from the highways and by-ways of Europe, the plague spread like wildfire to the entire continent. The first mention of the epidemic in the literature which has come down to us was dated August 7, 1495. So widespread was the disease, that it is estimated that one-fourth of the population of the entire continent was infected and death was a very common outcome. Throughout the sixteenth century, this "worst plague of all" was extremely widespread and constituted a very large part of medical practice. Charles' soldiers named it *"souvenir de Naples"*; the Neapolitans called it *mal franzoso*; the French *mala napoletana*; and the medical profession generally termed it *morbus gallicus*. The common names used by the laity seem to have been the French disease and pox, the latter term being retained in common use down to our own day. When we consider this background and the further fact that 263 separate treatises on syphilis are known to have been written prior to 1600, it is not surprising then that the Bard of Avon should have known well the symptoms of the disease which by 1550 had lost much of its acute virulence and had assumed largely the chronic characteristics it presents in our own era.

That Shakespeare knew the disease well and was familiar with its synonyms there can

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be no doubt. In *King Henry Fifth*, act V, scene 1, Pistol referring to the death of Mistress Quickly, says:

"News have I, that my Nell is dead, i'the spital
Of malady of France!"

Thersites in *Troilus and Cressida*, act II, scene 3, exclaims:

"After this, the vengeance on the whole camp! or rather, the Neapolitan bone-ache! for that, me thinks, is the curse dependent upon those that war for a placket." The designation "placket" referred to the slit in a woman's undergarment, and I am informed by an expert in feminine toggery that the term is still in common use among dressmakers of today.

The lay synonym—pox—is widely scattered throughout Shakespeare's works, often being used as a curse, or a form of oath, even by gentlewomen, for Katherine in *Love's Labour's Lost*, act V, scene 2, exclaims:

"A pox of that jest!"

Sir John Falstaff in *King Henry Fourth*, Part Two, act I, scene 2, evidently is in considerable doubt as to the diagnosis of his disease, or at least as to its basal etiology. After discussing his symptoms and infirmities with his page and the Lord Chief Justice, he remarks: "A man can no more separate age and covetousness than he can part young limbs and lechery; but the gout galls the one and the pox pinches the other; and so both the diseases prevent my curses." The word "prevent" here has the etymological significance of "precede" and evidently Falstaff believes he has both maladies. Later in the same scene he soliloquizes: "A pox of this gout! or, a gout of this pox! for the one or the other plays the rogue with my great toe." Evidently Sir John understood the etiological significance of overeating and of venery in podalgia, for in the fourth scene of the act following he indulges in this dialogue with Doll Tearsheet in Boar's Head Tavern.

Falstaff: You make fat rascals, Mistress Doll.

Doll: I make them! Gluttons and diseases make them; I make them not.

Falstaff: If the cook help to make the gluttony, you help to make the diseases, Doll! We catch of you, Doll, we catch of you; grant that, my poor virtue, grant that.

Did Falstaff have gout, luetic dachtylitis, or monarticular gonorrheal arthritis? Probably he had some urinary symptoms for he had sent a specimen of urine to his doctor for examination and the scene from which we first quote opens with the question to his page: "What says the doctor to my water?" Any urinary discomfort which may have been present could have been due either to gout or to gonorrhea, which, even long after Shakespeare's day, was believed to be a manifestation of syphilis and not a separate disease entity. Despite Chesney's opinion that the toe was a venereal manifestation, the age of the patient, the fact that he was "a fat rascal", his known habits of gormandizing and tippling—"living", as Osler puts it, "not wisely but too well",—and the involvement of the great toe, incline us to the opinion that he really had gout despite his admitted sexual exposure and his probable venereal infection. However, Sir John himself was evidently in serious doubt, or probably rather leaned to the theory that his intimacy with Doll Tearsheet had proven his undoing.

The dramatist was evidently well acquainted with the manifestations of syphilis and his descriptions are often remarkable. Several times he used the expression "French crown" to describe the common rupia, and often he refers to alopecia as a sign of lues.

Quince: Some of your French crowns have no hair at all.—*Midsummer Night's Dream*, I, 2.

Clown: As fit as ten groats is for the hand of an attorney, as your French crown for your taffeta punk.—*All's Well That Ends Well*, II, 2.

* * * The infinite maladie
Crust you quite o'er.—*Timon of Athens*, III, 6.

The last quotation stresses not only a der-

matological aspect of the disease, but its great chronicity as well.

Bone manifestations of late lues are described, as "the Neapolitan bone-ache", we have already referred to, and

Lucio: Nay, not as one would say healthy; not so sound as things that are hollow; thy bones are hollow; impiety has made a feast of thee.—*Measure for Measure*, I, 2.

Luetic ulcerations are described in *Timon of Athens*, act IV, scene 3, and the power of gold to render the lesions less hideous is stressed:

"This yellow slave * * * is it
That makes the wappen'd widow wed again;
She, whom the spital-house, and ulcerous sores
Would cast the gorge at, this embalms and spices
To the April day again."

"Wappen'd" here probably signifies diseased or decayed, although it was used also in the sense of worn out, wizened or practiced in the art of coition.

In *As You Like It*, act II, scene 7, the Duke addresses Jacques thus:

"Thou thyself hast been a libertine
As sensual as the brutish sting itself;
And all th' embossed sores and headed evils,
That thou with license of free foot hast caught,
Would'st thou disgorge into the general world."

Also:

Phrynia: Thy lips rot off.—*Timon of Athens*, IV, 3.

Shakespeare's most complete description of the manifestations of syphilis is found in the invocation of Timon to Phrynia and Timandra, mistresses of Alcibiades, who are demanding of the insane misanthrope "gold" and "more gold."

Timon: Consumptions sow
In hollow bones of man; strike their sharp shins,
And mar men's spurring. Crack the lawyer's voice,
That he may never more false title plead,
Nor sound his quillets shrilly; hoar the flamen,
That scolds against the quality of flesh
And not believes himself; down with the nose,
Down with it flat; take the bridge quite away
Of him that, his particular to foresee,
Smells from the general weal; make curl'd pate ruffians bald;
And let the unscarr'd braggarts of the war
Derive some pain from you; plague all,
That your activity may defeat and quell
The source of all erection.—*Timon of Athens*, IV, 3.

Some commentators believe that three diseases, tuberculosis, leprosy, and syphilis, are here referred to, holding that "consumptions" should be construed as tuberculosis; that "hoar the flamen" means whiten the priest with the anesthetic areas of *lepra alba;* and that the remainder of the speech describes syphilis. It seems to us, however, that the entire passage should be considered descriptive of lues alone. Timon was addressing women of known easy virtue, admitted mistresses of Alcibiades, and had just called them "whores" and "sluts", had adjured them to "be whores still" and seduce him "whose pious breath seeks to convert you", and "burn him up", which last instruction may have meant to infect him with gonorrhea, a condition believed in Shakespeare's day to be, as we have already said, a manifestation of syphilis rather than a separate disease. Most probably "consumptions" in hollow bones meant syphilis of the skull, an especially frequent site of luetic osteitis in the latter decades of the sixteenth century, due probably to the inadequacy of the treatment then administered. "Sharp shins" probably is synonymous with the "saber shins", about which we heard so much in our student days, and of which we see so few in actual practice. Ulcerations of the larynx would "crack the lawyer's voice" and prevent his quibbling and pleading titles, false or true. "Hoaring the flamen", or

whitening the priest probably had reference to the squamous syphilides which sometimes resemble psoriasis. Despite the fact that a flamen was a priest of a pagan god, Shakespeare may have been taking a fling at the priesthood, for whom he seems to have had no special love, and stressing the point that numbers of them are said to have been infected during the acute epidemic spread by Charles' army. The nasal manifestations, so vividly described here, are probably the most hideous bodily disfigurements wrought by the treponema pallidum, and Watson says this is the first recorded description in the literature of the depression of the nose as a syphilitic manifestation, thus stamping the Bard of Avon as a pioneer observer of luetic lesions. Alopecia had been noted since 1536, twenty-eight years before the poet's birth, however. The final effect listed is impotence, or "quelling the source of all erection." Watson holds this invocation to be the best description of late syphilis penned in English up to that time, probably a correct estimation. In order to evaluate the correctness of Shakespeare's description, it may be profitable to compare it with the symptoms as listed by Brassa, a medical writer about one generation prior to the birth of the poet and one of the most careful observers of his time. He enumerates: hard pustules on the head and forehead; pains in the head and limbs, especially in the thighs, most severe at night; a "congestion of white pus among the muscles of the thigh"; abscesses; ulcers; nodes; painful tubercles; tumors on the joints; cracks and scales on the hands and feet; a "crust over the whole body as in leprosy"; relaxation of the uvula; ulcers in the mouth and throat; erosion of the laryngeal cartilages; buboes; and falling off of the hair and beard. This list includes some doubtful manifestations as relaxation of the uvula, and two that are definitely erroneous, the "congestion of white pus" in the thigh muscles, and abscesses, both obviously secondary pyogenic infections, and omits two given correctly by Shakespeare—impotence and nasal depression.

Shakespeare does not describe the nervous manifestations of lues nearly so completely as he does the skin and osseous lesions, and the references he does make are probably clinical observations without any thought of their true etiology.

It may be that he recognized the phenomenon of the fixation of the pupil to light. Gloster's command to Simpcox certainly suggests such knowledge:

"Let me see thine eyes; wink now; now open them."—*King Henry VI*, Part Two, II, 4.

The poet was at his best medically, of course, in the delineation of insanity, and that he understood the general characteristics of paresis is evident from his description of Achilles, *Troilus and Cressida*, act II, scene 3. When the Grecian prince sulked in his tent, Ajax, Agamemnon and Ulysses were discussing the cause of his strange behavior. In reply to Agamemnon's question as to the whereabouts of Achilles, Patrochus replies:

"Within his tent; but ill dispos'd, my lord."

They continue to discuss his actions and "the savage strangeness he puts on,

His humorous predominance * * *
His pettish lunes, his ebbs, his flows, as if
The passage and whole carriage of this action
Rode on his tide."

Ulysses believes, "he is not sick", and describes him thus:

"Things small as nothing, for request's sake only,
He makes important. Possess'd he is with greatness,
And speaks not to himself but with a pride
That quarrels at self-breath; imagin'd worth
Holds in his blood such swoln and hot discourse
That 'twixt his mental and his active parts
Kingdom'd Achilles in commotion rages
And batters down himself. What should I say?

He is no plaguy proud that the death-tokens of it

Cry 'No recovery'."

Certainly the dramatist here displays in Achilles the personality changes, the effervescence of emotions, the unreliability, the irritability, and the grandiose ideas of paresis.

The idea of shame and disgrace associated with syphilis, while not nearly so profound as in the Victorian era, was present in the poet's day. Thus, when Falstaff insinuates to Prince Henry that Nell Quickly may be infected, the hostess of Boar's Head hotly retorts:

"No, I warrant you."—*King Henry IV*, Part Two, II, 4.

Also, Pistol refers to Doll Tearsheet, "the lazar kite of Cressid's kind" as taking treatment in "the spital" in "the powdering tub of infamy", clearly holding the disease a stigma and definitely opprobrious.—*King Henry V*, II, 1.

Furthermore, after Hamlet has slain Polonius by making a pass with his rapier through the arras, the King explains to Queen Gertrude the danger of allowing the mad prince to remain at liberty, saying that Hamlet should have been restrained ere this, but because of love,

"We would not understand * * *

But, like the owner of a foul disease,

To keep it from divulging, let it feed

Even on the pith of life."—*Hamlet*, IV, 1.

Some idea of the prevalence of syphilis and its ravages may be had from the dialogue in the churchyard between Hamlet and the grave-digger.

Hamlet: How long will a man lie i' the earth ere he rot?

Clown: Faith, if he be not rotten before he die,

As we have many pocky corpses now-a-days

That will scarce hold the laying in;

He will last you some eight year, or nine year;

A tanner will last you some nine year.—*Hamlet*, V, 1.

Reference here must have been made to the bodies of those dying of acute syphilis with secondary infection, those whom the grave-digger correctly describes as "rotten before death." Probably the secondary infection resulted in septicemia which causes rapid postmortem decomposition. Certainly in the very chronic cases with the increase of connective tissue, as is usually seen, disintegration should be retarded rather than hastened.

The fact of venereal contagion is stressed especially often in Shakespeare, but the poet was aware of nonvenereal modes of infection as well. In *Measure for Measure*, act I, scene 2, the fantastic Lucio and two gentlemen carry on the following discourse:

1st Gent.: Do I speak feelingly now?

Lucio: I think thou dost; and, indeed, with most painful feeling of thy speech. I will, out of thine own confession, learn to begin thy health; but, whilst I live, forget to drink after thee.

1st Gent.: I think I have done myself wrong; have I not?

2nd Gent.: Yes, that thou hast; whether thou art tainted or free.

Lucio: Behold, behold, where Madam Mitigation comes!

1st Gent.: I have purchased as many diseases under her roof as come to—

2nd Gent.: To what, I pray?

Lucio: Judge.

2nd Gent.: To three thousand dolours a year.

1st Gent.: Ay, and more.

Lucio: A French crown more.

1st Gent.: Thou art always figuring diseases in me, but thou art full of error; I am sound.

Lucio: Nay, not as one would say, healthy; but so sound as things that are hollow; thy bones are hollow; impiety has made a feast of thee.

Here Lucio evidently understands the danger of contracting syphilis by the common drinking cup, and the first gentleman

admits frankly he has contracted it through commercial prostitution. A number of references are made to the dangers of commercialized vice, for example, when Lysimachus questions the mistress of a brothel as to the possibility of becoming infected while patronizing her house:

"How now! Wholesome iniquity have you that a man may deal withal, and defy the surgeon?"—*Pericles*, IV, 6.

And later in the same scene, Marina, defending her virginity against the advances of Lysimachus, says:

"In this sty,
Where, since I came,
Diseases have been sold dearer than physic."

The danger of kissing is alluded to in *Timon of Athens*, act IV, scene 3.

Timon: * * * This fell whore of thine,
Hath in her more destruction than thy sword,
For all her cherubin look.
Phrynia: Thy lips rot off!
Timon: I will not kiss thee; then the rot returns
To thine own lips again.

Also there is a suggestion here of the idea which was prevalent then, and still is persistent in the substrata of society, that a person transferring a venereal disease to a healthy person cured the transmitter of the disease.

We have already referred to Falstaff's charge that Doll Tearsheet had infected him. Later in the same play, *King Henry IV*, Part Two, act II, scene 4, he refers again to her being infected, this time probably with gonorrhea, when we consider that she "burns poor souls." Also he admits having a charge account with Nell Quickly, Hostess of Boar's Head Tavern.

Prince Henry: For the women?
Falstaff: For the one of them,—she is in hell already and burns poor souls! For the other, I owe her money; and whether she be damned for that, I know not.
Hostess: No, I warrant you.

In the sixteenth century all manifestations of syphilis were believed to be very contagious, an idea probably an outgrowth of the great epidemic of 1495. Ordinarily we do not think of Erasmus as a medical observer, but Astruc quotes him thus: "This evil is propagated many ways beside that of copulation, as by kissing, talking together, touching each other, drinking together." According to the reformer, a barber might transmit the disease to a customer by "mowing down his beard", and by his comb and scissors, and even "the infection may be taken in by the nostrils." Erasmus probably saw much of the disease for in 1506 he went to Italy as traveling companion to the two sons of Baptista Boerio, a physician at the English court, and spent a year as supervisor of their studies at Bologna.

Treatment is probably less well described by Shakespeare than any other aspect of syphilis. Nowhere does he mention mercury directly as a therapeutic agent, although he must have heard of it, for the liquid metal was in common use, having been introduced in the treatment of the first great epidemic, being used first probably in 1497. The following quotations show the poet's knowledge of treatment, as he expressed it.

Pompey: Troth, sir, she hath eaten up all her beef
And she is herself in the tub.—*Measure for Measure*, III, 2.

"To the spital go,
And from the powdering-tub of infamy
Fetch forth the lazar kite of Cressid's kind,
Doll Tearsheet she by name."—*King Henry V*, II, 1.

Timon: Be a whore still! They love thee not that use thee;
Give them diseases, leaving with thee their lust.
Make use of thy salt hours; season the slaves
For tubs and baths; bring down rose-cheeked youth
To the tub-fast and the diet."—*Timon of Athens*, IV, 3.

Pandarus: Till then I'll sweat, and seek about for eases,

And, at that time, bequeath you my diseases.—*Troilus and Cressida*, V, 10.

The "sweats" were possibly mercurial fumigations which Paré, who was a contemporary of Shakespeare's, describes as putting "the patient under a tent or canopy made close on every side, lest anything should expire, and they put in unto him a vessel with hot coals, whereupon they plentifully throw cinnabaris, so that they may on every side enjoy the rising fume." It is possible this was "the powdering tub of infamy" from which Pistol directs Nym, "the hound of Crete", to fetch Doll Tearsheet. They may have been, however, sweats induced by drinking sweating decoctions, the medicinal ingredients of which were sassafras and guiacum, the latter being much in vogue as an antiluetic. "The diet" was apparently very meagre and strict, "the inch diet wherein we eat by drams and drink by spoonfuls." Oat cakes, raisins, biscuits, and but little meat, were recommended for syphilitic diet by leading physicians of the poet's day. Watson mentions a high protein diet as being recommended and that may be Pompey's reference to Mistress Overdone:

"Troth, sir, she hath eaten up all her beef,

And she is herself in the tub."—*Measure for Measure*, III, 2.

Moyes discusses "the tub" at some length and believes it was essentially a sweating process. He says it was for some unknown reason familiarly called "Cornelius' tub", and quotes Bullein to the effect that it was a wooden tub of the kind used for curing meat which was powdered and sprinkled with salt during the curing process. Hence it was in reality a "powdering tub", but when used in treating syphilis, became a "powdering tub of infamy." The strict diet used in conjunction with the tub, probably explains the term "tub-fast."

Probably the term spital described a place where luetics went for treatment especially for mercurial fumigations and inunctions, as well as a hospital. It was at times spelled spittle and some commentators believe the term originated from the frequent mercurial salivation of the patients treated there. However, it seems to us that the most reasonable derivation is a shortening of the word hospital.

We have shown that Shakespeare was very well versed in the medical aspects of syphilis as they were known in his day. Evidently he did not believe in the American origin of the disease, and if the "Columbian myth" be a fact, the bard must be charged with another anachronism in describing syphilis in ancient Greece. That he was ever a victim of the disease himself we much doubt, for had such been the case, he would in all probability somewhere in his writings have referred definitely to mercury in the treatment. But such is not the case. Any possible reference to this drug is at best indirect and so vague as to be doubtful. He did discuss syphilis frankly and boldly, and had his attitude toward keeping the disease in the clear light of day been maintained, we should no doubt have seen more progress in its eradication. But the wave of modesty, or shall we say prudery, which overflowed England and the English speaking world rendering tabu the subject of venery and its diseases has left to our own Surgeon General Parran the task of bringing syphilis "out of the basement into the parlor", under the bright light of publicity where it can, we hope, be finally eradicated root and branch.

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Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

EFFECT OF CONTAGIOUS DISEASES

Several writers state that during an attack of measles the tuberculin test becomes negative. Some assert that intercurrent infections, particularly measles, stimulate activity in many cases of tuberculosis. In one series of 37 cases of tuberculous children who developed measles, the tuberculin test done by the Pirquet method showed that the reaction became negative in all at the appearance of the eruption, but became positive again in half of them by the seventh day. Other writers express different views. Chadwick, for example, found that a group of tuberculous children who reacted positively to tuberculin showed no change roentgenologically and no change in their tuberculin reactions during and after measles. Berghoff studied 596 cases of measles in the army and found only one case of frank active tuberculosis following directly after a measles infection.

Scattered studies made in Europe to determine the effect of whooping cough, chickenpox, scarlet fever and measles on the tuberculin reaction, and on active or inactive tuberculous lesions, indicate that the effect of the contagious diseases on tuberculosis has been exaggerated and may be very doubtful. This supports the findings of the author in a study made at the William H. Maybury Sanatorium, which included 43 children with measles, 39 with chickenpox, 16 with whooping cough, 13 with scarlet fever, 30 with mumps and six with diphtheria, making a total of 147 cases of acute infectious disease in a group of 118 children convalescing from pulmonary tuberculosis of the childhood-type. The ages of the children ranged from six months to 15 years. All had x-ray examinations of the chest a short time before the onset of the contagious disease and directly after the expiration of the quarantine period. Eighty-three had active pulmonary tuberculosis of the childhood-type; 35 had apparently arrested disease.

In four of the 43 cases of measles the intracutaneous tuberculin test with Old Tuberculin became negative to a dose to which they were positive before, but were again positive two weeks after the disappearance of the eruption. Six cases, showed by roentgenological examination, an increase in the pre-existing tuberculous process but none of these occurred in less than one month after the measles. In each instance the exacerbation of the tuberculosis was an evanescent occurrence and all recovered completely in a few months.

Two of the 16 children with whooping cough showed exacerbation of the tuberculous disease. In one case this occurred during the course of whooping cough but subsided promptly. Three of the cases of chickenpox experienced extensions of their tuberculous lesions: none of them showed any change in the tuberculin reaction. Of the 25 children with mumps, 24 were positive to tuberculin before and after the disease. However, a change in the type of the reaction was noticed in several. None of the mumps patients showed reactivation or exacerbation of their tuberculosis.

Of the 13 cases with scarlet fever, only one showed a spread of the tuberculous process. None of the six cases of diphtheria experienced any ill effects so far as their tuberculosis was concerned. The children with scarlet fever and diphtheria were not tested with tuberculin.

In the discussion, the author points out that only 12 children of the 118 showed any increase in the tuberculous lesions during convalescence. This closely parallels the experience of similar groups of patients whose tuberculosis was not complicated by acute contagious diseases. In the great majority of those who showed increase in tuberculosis, the extension occurred several weeks after the intercurrent disease had subsided. None of these remissions occurred in quiescent or apparently arrested lesions showing that the old foci were not disturbed by the intercurrent contagious disease. The remissions seen in the active tuberculous lesions could be safely considered coincidental and unrelated to the contagious disease.

The Effect of Contagious Diseases on Pulmonary Tuberculosis and on the Tuberculin Reaction in Children, J. P. Nalbant, American Review of Tuberculosis, Vol. 36, No. 6, December, 1937.

President's Page

The editorial in the *Journal A. M. A.* of January 15th, Medical Care For All The People, is commended to the attention of all who did not have the opportunity of hearing it personally discussed by Dr. Leland at the recent Conference of County Secretaries.

This editorial is the outgrowth of a recent action by the Board of Trustees of the A. M. A., which may turn out to be of such vast importance as in the future to be considered epochal. How the suggestions therein contained will work out in practice only time can determine. At least it is the first essay at solution of a difficult problem offered by an authoritative spokesman for our profession and a welcome substitute for panaceas originating in lay and political organizations.

The central idea which impresses one as being basically sound is that every community has its own problems of health and sickness, peculiar to itself, which need individually selected means of treatment and make impracticable mass handling directed from a central agency; such as sick patients, diabetics for instance, require highly individualized applications of general medical principles. Logically, therefore, each community must be submitted to a scrutinizing survey of its needs just as diagnosis of disease must precede intelligent treatment.

In such community surveys it is hoped that the medical profession will assume leadership and secure the active support and cooperation of all other interested parties. In practice this detail may prove difficult but we must not fail in what seems like a great opportunity to justify the existence of organized medicine. At present we can but await with interest the future plans to be elaborated by the proposed committee. We trust that the editor of our own JOURNAL will continue to take editorial notice of this interesting development by helpful comments from time to time.

The recent Conference of County Secretaries was justly considered a success and so impressed the writer that he hopes to make it the occasion for a separate paper at some more appropriate time, with the idea in view that every Society in the Association should be represented at this annual meeting by both its Secretary and its President.

President.

West Virginia Medical Journal

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THE SYPHILIS CAMPAIGN

In the past decade, scientific opinion has crystallized in regard to the treatment of syphilis in a rather remarkable fashion. Perhaps in no other field of medicine is there so general an agreement as to the basic and fundamental principles to be followed as in the management of this disease. Most authorities now agree that much progress can be made in the control of syphilis if the knowledge which has been accumulated in the past ten years is accurately applied. The informative and educational program against syphilis is in many respects one of the most important phases of the work. It is our belief that the education of the public must be a gradual but continuous process with a repeated emphasis of fundamental facts. This is a project which cannot be completed in a month or a year. It must represent a continuous process on the part of those charged with this duty until there is a fairly general understanding of the nature and destructiveness of syphilis as a disease.

A more intensive and detailed educational program must be placed before the physicians of the state in order to acquaint them with the advance in modern methods in the management of the remarkably variegated picture which syphilis presents. We feel that this instruction should begin in the medical schools, should be carried into postgraduate instruction of practicing physicians and that every method possible should be employed to increase the working armamentarium of the practicing physician.

With these points in mind, the editorial board of the WEST VIRGINIA MEDICAL JOURNAL has seen fit to authorize an annual "Syphilis Number." The first such number was published in February, 1937, under the direction of Dr. G. G. Irwin of Charleston. It contained many interesting articles and evoked much favorable comment throughout the state. The diagnosis and treatment of early syphilis was one of the main points emphasized in that issue. This year an effort has been made to broaden the picture of the treatment of syphilis and also to consider it from an epidemiological standpoint.

It is hoped that the articles presented in this issue will serve as opening shots in the campaign of 1938. A further offensive along this front may be expected through the efforts of the Committee for the Study and Control of Syphilis in West Virginia. The personnel of this committee is Wm. M. Sheppe, chairman; Ray M. Bobbitt and A. H. Stephens. The first report of this group will be ready for publication to the membership of the state society shortly before the Annual State Meeting at White Sulphur.

The editors wish to express their appreciation to each contributor to this second annual "Syphilis Number" of the WEST VIRGINIA MEDICAL JOURNAL.

HOSPITAL INJUNCTION

The right of a hospital to "practice medicine and surgery" was definitely denied on January 29, 1938, when Judge Julien Bouchelle of the Circuit Court of Kanawha County issued an injunction order against the Staats Hospital, Inc., of Charleston restraining the hospital from making "list" contracts for "medical, surgical and hospital service." The order of Judge Bouchelle does not in any way prevent a hospital corporation from contracting for hospital service, but medical and surgical service can not be included in such contracts.

The opinion handed down by Judge Bouchelle in the Staats case has already attracted wide attention, both within and outside the borders of West Virginia. Unquestionably the decision will bring about a decided change in the present system of hospital "list" contracts now prevailing in the southern part of the state. If "list" contracts for medical and surgical service are continued in the future, they will have to be made by individual physicians and surgeons. In that event, some plan not at variance with the principles of medical ethics of the American Medical Association will have to be worked out.

Judge Bouchelle spoke plainly and with vigor against corporate medicine in any form. "The weight of judicial reason and authority," he said, "favors the view that neither a corporation nor any other unlicensed person or entity may engage in the practice of medicine or surgery through licensed employees. The reasons for the rule may be stated in general to be the inability of a corporation to possess the specified requirements; its incapacity to qualify by taking a personal examination; and the recognition that because of the inherent characteristics of a corporation there can never exist between it and the patient that confidential and intimate personal relationship ordinarily present between physician and patient."

In regard to "list" contracts for hospitalization only, Judge Bouchelle's opinion reads, "In order that there may be no misunderstanding as to the scope of this opinion, attention is directed to the fact that it is not intended to preclude contracts by individuals or corporations to furnish hospital facilities only by the contract list plan."

We understand from our Association's legal sources that Judge Bouchelle's opinion applies not only to hospital corporations but also to mining and other corporations that realize a considerable profit through the employment of salaried physicians to render medical service to employees; a monthly deduction being made from the employees' wages for this purpose. If this is true, we hope that our industrial corporations indulging in such practices will shortly be brought to time.

As yet there has been no indication whether or not the decision would be appealed to our state supreme court. If it is appealed, the effectiveness of the injunction will be held up until a final decision is reached. In the meantime we suggest a thorough study of Judge Bouchelle's opinion by the Association officials and legal counsel with the end in view of meeting around the conference table with those affected by the decision and working out an ethical and equitable plan for distributing medical and surgical service to the mine population of West Virginia.

REVISION OF BY-LAWS

At the meeting of the Association Council in Charleston last December the suggestion was made that the Association by-laws be revised to lengthen the terms of county society delegates to two years. At the present time, each society elects its representatives in the Association House of Delegates each year and the delegates serve one year terms.

The above suggestion has already attracted considerable attention and may come before the Association at the White Sulphur Springs meeting next July. Those favoring the plan point out that our own state delegates to the American Medical Association are elected for two year terms, on the theory that a delegate will be of much greater value his second year. They maintain that our county society delegates should be elected for two year terms for the same reason. It is generally recognized, they point out, that a doctor's first year in the House of Delegates is an apprenticeship, after which he becomes familiar with Association problems and a valuable asset to his county society and to the Association.

A further argument advanced in favor of the two year terms is that the "turnover" in the House of Delegates will not be so rapid and the "holdover" members each year will

be a steadying influence upon the Association's legislative body. This position is based on the assumption that all societies entitled to two or more elected delegates would elect such delegates to serve "staggered" terms; one-half of the quota being elected each year.

The suggestion has been turned over to the Association's Constitution and By-laws Committee for further study.

DIPHTHERIA MORTALITY

Just how effective West Virginia's compulsory immunization law will become probably can not be known for several years yet. One thing, however, is certain. We are starting from "scratch." This law went into effect last September and in early January the statistics of the Metropolitan Life Insurance Company showed West Virginia leading all other states with a diphtheria death rate of 7.4 per 100,000 population.

We assume that the Metropolitan figures are correct—certainly their statistics in the past have always been—and we accept our position at the bottom rung of the diphtheria ladder with humble shame. One thing, however, is in our favor. At the bottom rung of the ladder, we can't go anywhere but up. If our immunization law is worth anything at all, it will have an ideal opportunity during the next few years to prove its merit.

It is barely possible that our diphtheria immunization law may do more harm than good. State Health Department figures show that 85 per cent of our diphtheria deaths occur before the school age, and statisticians generally tell us that the diphtheria deaths after admission to the schools are so few as to be almost negligible in calculating mortality rates. That being true, it is possible that our compulsory statute requiring immunization as a prerequisite to admission to our school system might lull West Virginia parents into a false sense of security. If parents should ever feel that diphtheria immunizations were unnecessary until required by law, much harm would result.

A recent occurrence in Huntington illustrates this danger. A family moved into the city from another state after the beginning of school last fall, one member a girl of seven. This child was admitted to a room in Holderby school in which there were thirty-five immunized children. The parents were contacted and the immunization law explained. They decided to wait the legal limit of four weeks before complying. In less than three weeks the little girl contracted diphtheria and five days later was dead. What an awful penalty these parents paid for waiting until the legal limit! And not one of the immunized children in the school contracted the disease.

We feel, therefore, that our doctors and our health officials should combine their efforts and strive for early diphtheria immunizations; preferably when the child has reached the age of six months. Concerted action should be directed toward that end.

THE MEDICAL SERVICE PROBLEM

The resolution adopted at the January meeting of the Board of Trustees of the American Medical Association promoting surveys of medical needs by county medical societies has already attracted wide attention and many component groups have already started on this important work. This resolution, reported in full in our February issue, urges each component county medical society to assume community leadership in directing surveys of local medical needs.

We take this opportunity to urge upon every county society president and secretary in West Virginia to bring this to the immediate attention of their membership. There should be a thorough discussion of the problem. An able committee should be appointed in each society to confer with interested lay groups and to secure lay assistance in surveying local medical needs. Let us find out what our problem is in West Virginia. Then we'll find a way to solve it.

Obituaries

DR. W. P. BEAN

Coming as a shock to his many friends throughout McDowell County was the sudden death of Dr. W. P. Bean, 64 years of age, prominent Keystone physician. He died February 16, 1938, at the home of a brother in Sheffield, Alabama, whom he and his wife had been visiting.

Dr. Bean had been in ill health for the past several months, having suffered a stroke of paralysis. A native of Tennessee he came to McDowell county about 30 years ago and began his practice at Keystone, first being associated with Dr. H. G. Steele, now of Bluefield. Dr. Bean was a member of his county and state medical societies and the American Medical Association. He is survived by a widow and two daughters.

DR. LYNDON SEWELL SMITH

Dr. Lyndon Sewell Smith of Monongah, West Virginia, died January 31, 1938. He was physician for the Consolidated Coal Company at Monongah. He was 65 years of age.

Dr. Smith was a native of New Hampshire and came to West Virginia in 1901 at which time he settled in Gypsy, where he was employed by the Consolidated Coal Company. Twenty-five years ago he came to Monongah where he had since been employed in a similar capacity. He received his medical education at Baltimore Medical School, graduating in 1901. He was a member of his county medical society, the State Medical Association and was a Fellow of the A.M.A. He is survived by his widow and three children.

HEALTH APPOINTMENTS

Dr. Leon Dickerson has been appointed as full-time health officer for Fayette County. Dr. William H. Riheldaffer has been appointed district health officer of the fifth district with headquarters at Romney. Dr. William Earl McIlvaine has been appointed as district health officer for the first district with headquarters at Sutton. All of these physicians have recently received three months' training in public health at the University of North Carolina and six weeks in field training at the Public Health Training Center in Beckley. Dr. J. H. Crouch has been appointed as district health officer for the second district with headquarters at Lewisburg.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

THE PUBLIC HEALTH NURSE

The Revised Sanitary Code of West Virginia, 1938, Chapter XIII, Regulation 1, Section 2, is as follows:

"Qualifications for Full-Time Public Health Nurses: A nurse who is employed to do public health work in West Virginia shall not be over thirty-five years of age if entering this field for the first time. She shall be a graduate of an accredited school of nursing and shall be registered with the State Board of Examiners of Nurses at the time of her employment or shall apply for registration at the next succeeding meeting of the Board. She shall also have at least one semester of postgraduate work in a recognized school of public health nursing approved by the United States Public Health Service and a minimum of six weeks' practical training in the West Virginia Public Health Training Center or its equivalent in field work."

"Why is it necessary for a nurse to have other than her hospital training to fit her for public health nursing?" Dr. Wilson S. Smillie says in his book on "Public Health Administration in the United States": "No individual plays a greater part in the development of the public health program than the nurse. Her services are utilized by all divisions of activity including communicable diseases, maternal and infant welfare, preschool and school hygiene, industrial hygiene and health education. The nurse enters most intimately into the lives of the people, wins their confidence and interprets the purposes of public health activities to everyone in the community."

In all services the objectives are prevention of disease and promotion of health. To reach these objectives the nurse works with the health officer, the local physician and other public health nurses and interested agencies of the community. She is first the intelligent cooperator and assistant of the physician in matters of public health just as she always has been in the case of sickness. Secondly, she is the public servant, paid out of public funds to promote public health.[1]

In communicable disease control, the special function of the nurse is to assist the local physicians and health officer in the prevention of the

spread of disease through seeing that their instructions to the patients and families in isolation and quarantine are followed out and in assisting in immunization. She takes an active part in the prevention and control of tuberculosis, for it is her duty to help the patient and the family to arrange the necessary isolation of the patient in the home and to teach them the importance of observing all precautions and care of the patient as outlined by the physician. In venereal disease cases by tactful, sympathetic approach to the patient she may aid in securing continuous treatment of infected individuals by private physicians or at clinics in her territory, to the end that each patient will receive adequate care. In localities where venereal disease clinics are held she assists in these clinics.

The main objectives of maternal care are to get in touch with all prospective mothers as early in pregnancy as possible and to see that arrangements are made for adequate nursing and medical supervision throughout the prenatal, delivery and postnatal period. Any visits made to the home during the lying in period are made with the object of educating the patient in the proper care of herself and infant. Mothers are urged to go to their physicians and to take the baby along for an examination six weeks after delivery.

The nurse assists in the infant and preschool period by working with parents and physicians; helping the parents to arrange for regular medical supervision and instructing the mother in carrying out the physician's orders in relation to feeding the baby, general hygiene and immunizations. When the child enters school, the nurse is the connecting link between the school medical service and the home. She works with the teacher, the school physician, the family physician and the parent for the betterment of the health of the child.

These are not all the duties of the public health nurse but serve as an example of the diversified program under which she works. The public health nurse as employed by the State Department of Health or under the direction of the State Department and its local agencies must have a generalized program. Therefore she neither has time nor is permitted to do bedside nursing in a true sense. Where there is actual bedside nursing it is carried on by non-official agencies.

At present there are employed sixty-two public health nurses on the official list. There are eight nurses receiving scholarships in various schools of public health nursing.

County Society News

CABELL COUNTY

A symposium on tuberculosis featured the regular monthly meeting of the Cabell County Medical Society held at the Governor Cabell Hotel on the evening of February 10. There was a good attendance and liberal discussion.

The symposium was opened by Dr. W. Byrd Hunter with a paper on "Public Health Aspects of Tuberculosis Control." He was followed by Dr. Walter E. Vest who spoke on "Interpretation of Positive Tuberculin Test." Dr. George M. Lyon followed with the closing talk on "Correlating the Program of the Medical Profession, the Community Health Agencies and School Health Education."

BOYD F. BROWN, *Secretary.*

FAYETTE COUNTY

The regular monthly meeting of the Fayette County Medical Society was held at the Woman's Club, Montgomery, on the evening of February 15 with a good attendance. The guest speaker of the evening was Dr. George Crisler of Charleston who spoke on "Cold Allergy." Many questions were asked the essayist following the presentation of his address.

Visitors at the February 15 meeting included Dr. M. L. Bonar, Charleston, and Mr. Joe W. Savage, state secretary.

Dr. A. E. Bays, Longacre, officially became president of the society at this meeting, replacing Dr. F. S. Harkleroad who recently moved to Raleigh county. Dr. C. W. Stallard and Dr. A. J. Holton were elected vice presidents.

GILBERT DANIEL, *Secretary.*

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of February 8 with an excellent attendance. The guest speaker of the evening was Dr. Henry H. Kessler, Medical Director of the Workman's Compensation Commission of New Jersey, who spoke on "Industrial Injuries." Dr. Kessler also presented a talking moving picture on "Cinematic Amputations."

The March meeting of the Society will be held at the Daniel Boone Hotel on March 8 and will be devoted to syphilis.

Dr. J. G. M. Bullowa, Professor of Clinical

Medicine of New York University, will be the guest speaker at the April 5 meeting of the society. His subject will be "Specific Serum Treatment for Pneumococcus Pneumonia." Dr. Bullowa is also Director of the Littauer Foundation for Pneumonia Research and Director of the Pneumonia Service of Harlem Hospital, New York City. Members of neighboring county societies will be invited to attend Dr. Bullowa's lecture.

A. SPATES BRADY, JR., *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular meeting at the Aracoma Hotel, February 9, 1938. Dr. D. T. Moore, president, presided. Dr. A. M. French, Logan, was admitted to membership.

Dr. W. Edwin Matthewes presented two very unusual urological cases which were discussed by Dr. H. D. Hatfield. Dr. Hatfield, Huntington, assisted by Dr. J. A. Stumbo, Logan, presented a large number of unusual fracture cases all of which were treated by the open method.

J. L. PATTERSON, *Secretary*.

MERCER COUNTY

The Mercer County Medical Society held its regular monthly meeting Thursday, January 27, 1938, at 8:00 p. m. in the Directors' Room of the Municipal Building, Bluefield.

The program consisted of interesting case reports. A case of streptococcic meningitis successfully treated with sulfanilamide was reported by Dr. Shanklin. A case history of a cyst of the thoracic duct following an abdominal injury was given by Dr. Butts and discussed by Dr. Scott.

A motion was made by Dr. Steele that a resolution be drawn up on the recent death of Dr. S. J. Kell. Doctor Horton appointed Drs. Steele and Lepper to draw up such a resolution.

O. G. KING, *Secretary*.

MONONGALIA COUNTY

Dr. C. M. Bray, Morgantown, was the essayist at the February first meeting of the Monongalia County Medical Society which was held at the City Hospital, Morgantown. Dinner was served at six o'clock, after which Dr. Bray gave a most interesting paper on "Physiotherapy, Its Growth and Place in Practice." A liberal discussion followed.

G. R. MAXWELL, *Secretary*.

OHIO COUNTY

Dr. Henry John of the Cleveland Clinic, Cleveland, Ohio, was the guest speaker at the January 28 meeting of the Ohio County Medical Society held at the Ohio Valley General Hospital. His subject was "Surgery in the Presence of Diabetes." The discussion was led by Dr. W. M. Sheppe, Dr. J. R. Caldwell and Dr. J. R. McClung.

Dr. Horton Casparis, Professor of Pediatrics at Vanderbilt University School of Medicine, Nashville, was the essayist at the February 11 meeting of the society. His subject was "Relationship of the Medical Profession to Governmental Agencies in Regard to General Medical Care." This talk provoked a wide discussion.

W. C. D. MCCUSKEY, *Secretary*.

Woman's Auxiliary

FAYETTE COUNTY

The Woman's Auxiliary met at the M. E. Church, Montgomery, on January 20. Mrs. H. F. Troutman, president, conducted the meeting. Twelve members were present.

Mrs. Ethel Smith, executive secretary of the Tuberculosis Association, told the gathering of the work going on at Pine Crest Sanitarium.

Mrs. V. E. Holcombe, national program chairman and chairman of the Committee for a Benevolent Fund for the State Auxiliary, attended the meeting. Mrs. Holcombe talked to the Auxiliary concerning the Benevolent Fund and its purpose.

Mrs. J. Hudson Robinson of Charleston, a guest of the Auxiliary, told the group how Philadelphia Auxiliaries handled their benevolences.

A motion was made and carried to the effect that the Fayette County Medical Society Auxiliary endorse the Benevolent Fund plan.

The next meeting will be held February 17, 1938.

MRS. R. D. KETCHUM, *Secretary*.

LOGAN COUNTY

The Woman's Auxiliary met on February 1 at the home of Mrs. C. A. Davis, Logan. Mrs. D. S. Hess, president, presided. Sixteen members and visitors attended the session.

Dr. Otto J. Swisher, Jr., acting county health doctor, spoke to the group on the subject "Health Conditions in Logan County."

Plans were discussed for the observance of "Doctor's Day" to be held in March.

MAE PATTERSON, *Secretary*.

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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

ASSOCIATE EDITORS:
J. HOWARD ANDERSON
Hemphill, W. Va.
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THE PARATHYROIDS AND DISEASES OF BONES

By THOMAS P. SPRUNT, M. D.
Baltimore, Maryland

During the recent year there has occurred a distinct increase in our interest in diseases of the bones. Like arthritis and other joint diseases thirty years ago, bone diseases have been stepchildren of medicine and it is only within the past decade or so, with increasing knowledge of the physiology of bone and with glimpses of favorable therapeutic potentialities, that we have become alive to the interest and to the importance of bones.

We were apt to think of bones as forming an inert skeleton for the support of the living body. It is necessary, however, for us to think of bone as it is, a living tissue with a constantly active metabolism even though its activity is perhaps on a much lower scale than that of glandular organs. Anabolic and catabolic processes are constantly going on, now the one and now the other in the ascendence, depending upon the state of the body fluids that bathe the bones. It is customary to separate the bone anatomically into the organic matrix and the inorganic portion, or lime salts, that are deposited in the matrix. The organic matrix is little understood. It seems to consist of the same collagen that is present in common connective tissue and cartilage, together with an albuminoid and mucoid. There is also said to be a protein constituent with reducing characteristics. The inorganic bone salts have been of greater interest to investigators and are of more importance to us clinically. Certain students of Roentgen spectography believe that bone salts are present in a form similar to that of the apatite group of minerals, indicating that calcium phosphate and calcium carbonate are present as a double salt rather than as mixtures of the two. The ratios of calcium phosphate to calcium carbonate may differ in different species of animals depending upon the constitution of the circulating blood. It would seem that the blood serum under abnormal conditions similarly affects the mineral composition of bones. Huggins[1] and associates point out that while normally the principal cations present are calcium and magnesium; in poisoning, others such as the salts of lead, strontium, silver, radium and related salts like thorium form in the bone, reflecting their

presence in the blood stream. Their conclusion then is that the inorganic constitution of bones is influenced by the composition of the body fluids and under normal conditions the predominant salts are of the apatite group, but that under abnormal conditions other salts accumulate and that any chemical combination which tends to make an insoluble or difficulty soluble salt in a faintly alkaline watery medium will be found in the bones and teeth. We know too that with our knowledge of the physiology of bones we can to some extent influence the deposition of an extraneous poisonous salt in bone and can also hasten its departure from it.

OTHER TEMPORARY FACTORS

Other factors to keep in mind in relation to bone physiology are the cellular ones, the osteoblasts or builders of bone, and osteoclasts or destroyers of bone. Still another factor of considerable interest that is believed to have to do with the building of bone is the ferment phosphatase and its titer in the blood serum is used along with that of calcium and of phosphorus in the blood as a diagnostic indicator in diseases of the bones. Not much is yet known about the mechanism of calcification or decalcification in bones and students in this domain are frequently at odds about details of the process. We can safely say, however, that the bones constitute the important storehouses of calcium and of phosphorus in the body and as such they stand in intimate relation with the metabolism of calcium and phosphorus in the body fluids and tissues. These elements are essential constituents of the body fluids. We think of calcium in its relation to the clotting of blood, to neuromuscular excitability, to acid base equilibrium, to the permeability of cell membrane, etc.

The amounts of calcium and of phosphorus in the blood are among the so-called physiological constants and are maintained within very narrow limits of variation with remarkable fidelity.

At the risk of over-simplification we may divide the regulating factors of calcium and phosphorus into two principal ones, (1) an underlying mechanism consisting of the ingestion of calcium and phosphorus in the food, their absorption from the alimentary tract, and their excretion in the urine and in the feces, and (2) a prompter mechanism in the relation of the parathyroids to the storing of calcium and phosphorus in the bones.

This classification is a useful one in the present state of our knowledge, though as I have said it may be over simplified. We know, for example, that other endocrine glands, especially the thyroid and the pituitary under abnormal conditions can bring about the release of calcium from the bones, and other variations in the chemistry of the body fluids, as for example, acidosis and a general increase in the ions of the fluid can similarly cause bone decalcification.

Vitamin D is a factor of great importance, particularly it would seem in the first or underlying mechanism of the ingestion and excretion of calcium and phosphorus. Another factor of importance is the relationship of the calcium and the phosphorus of the blood to each other. There is a reciprocal relationship. When the one increases the other tends to diminish in amount.

MECHANISMS NOT INDEPENDENT

We would not think of these two important general mechanisms for the control of calcium and phosphorus metabolism as being entirely independent of each other. They doubtless complement or supplement each other and one can readily appreciate that the parathyroid as the leader in the promptly acting mechanism must frequently be under some strain in the effort to compensate for defects in the underlying factors. For example, the important disease, rickets, is considered to be due chiefly or solely to an absence or insufficiency of the vitamin D that brings about a very marked disturbance of the metabolism of calcium and of phosphorus. I do not know exactly what part the parathyroids play in response to this disease but the amounts of calcium and of phosphorus in the blood serum are not greatly changed and

there are many reports of hypertrophy or hyperplasia of the parathyroids in rickets. The disease of course can be controlled, or perhaps cured, by the administration of sufficient vitamin D-containing substances. Similarly, when the food intake is deficient in calcium or when there are special demands for calcium in the body, as during pregnancy and lactation, the parathyroids and bones may be called upon to compensate for this deficiency and a certain strain may be placed upon them. Again, in advanced disease of the kidneys with renal insufficiency the excretory mechanism is at fault. Phosphorus, which is normally excreted largely through the urine, is retained in the blood stream, the blood phosphorus rises, the blood calcium falls and a definite hypertrophy or hyperplasia of the parathyroids occurs as demonstrated by several adequate pathological studies. In cases of very chronic and extreme renal diseases, especially in children and young people, we see the so-called renal rickets or renal dwarfism with extreme hyperplasia of all the parathyroid tissue and all the other features of hyperparathyroidism except the blood chemistry and the excessive urinary excretion of calcium and phosphorus.

HYPERPARATHYROIDISM

With milder disturbances of the underlying factors there may be strain upon the parathyroids and a proper parathyroid response with satisfactory compensation, with a return to the former status after the removal of the cause of strain. If, however, there is over-compensation or unregulated compensation hyperparathyroidism may result. Most of the cases of hyperparathyroidism as you know are due to a functioning adenoma of parathyroid tissue. Wilder's[2] explanation of the origin of parathyroid adenomata and perhaps of the geographical distribution of the disease, hyperparathyroidism, is ingenious and rational. He believes that adenomata of the parathyroids take their origin from embryonic cell rests. People with such embryonic cell rests are presumably scattered more or less uniformly throughout the general population. In certain sections, however, an indoor life, cloudy and foggy weather, and much smoke in the atmosphere from industrial plants, bring about a relative lack of vitamin D and in such localities a stimulus is thus applied to embryonic cell rests that have parathyroid potentialities and the growth of a parathyroid tumor is inaugurated. In a recent case of my own with typical hyperparathyroidism due to a parathyroid adenoma, one of the interesting features in her history was that of recurring tetany with low blood calcium during lactation twelve or fourteen years before the surgical removal of the parathyroid adenoma.

THREE SYMPTOM SOURCES

The disease, hyperparathyroidism, has a multiple symptomatology and according to the circumstances of the individual case it may present itself essentially as a disease of the bones or as a disease of the urinary tract. The sources of the symptoms are threefold and are associated with the three important pathological features. In the first place, there is a hypercalcemia; the calcium of the blood that is normally from nine to eleven mg. per cent may be increased to 12, 15, 18 or 20 mg. per cent. The phosphorus, on the other hand, is decreased to below three mg. per cent; the phosphatase of the blood serum is increased. In contradistinction to the neuromuscular hyperexcitability of tetany where the blood calcium is low, we see in hypercalcemia a lessened excitability with feelings of weakness, fatigability, malaise, hypotonicity of the musculature, relaxation of ligaments and perhaps flat feet. In the second place there is a demineralization of the bones involving the whole skeleton, resulting in increased radiability and the x-ray appearance of decalcification. This may be so mild that it is not recognizable or it may be extreme with very marked decalcification. In such cases the bony trabeculae are very thin, there is increased fibrous tissue between these trabeculae and in the marrow cavity, the number of osteoclasts is very greatly increased, the aggregations of these cells in rarefied areas constituting the so-

called giant celled tumors or osteoclastomata. There may be further slits in the fibrous tissue with the collection of fluid with the formation of cysts. We then have the full blown picture of the so-called osteitis fibrosa cystica, or von Recklinghausen's disease. The weakness of the decalcified skeleton may result in fractures that occur usually at the site of giant celled tumors or cysts or other deformities. The vertebræ may be compressed and deformed with biconcave surfaces and widening of the intervertebral discs. The patient may present herself because of a pathological fracture, or the patient may complain of aching in the bones or joints, inability to use the muscles properly. In a recent case the patient showed a very awkward gait and could not rise from a chair without assistance from her arms. The third source of symptoms is in the hypercalcinuria. In this disease there is a marked increase in the excretion of both calcium and phosphorus in the urine. This results often in a polyuria that may be extreme or mild or in some cases absent. If there is little or no polyuria, or if there is some obstruction to the flow of urine or infection in the urinary tract, the high content of calcium in the urine often results in the deposition of calcium stones in the kidney pelves or in the ureters.

CALCIUM AND PHOSPHORUS TESTS

Many of the Boston cases were discovered by routine tests of the calcium and phosphorus of the blood in all cases of radiable urinary calculi. Instead of larger stones there may be merely the passage of urinary sand, or the deposition of calcium may occur in the kidney substance itself resulting in some cases in the clinical features of a marked chronic nephritis. In such cases the earlier features apparently are a fixed low specific gravity of the urine and a reduction of the ability of the kidneys to excrete phenolsulphonphthalein before the occurrence of marked nitrogen retention or elevation of the blood pressure. With more marked renal failure the blood chemistry of this disease may be greatly changed since the phosphorus may be retained in the blood giving an increased rather than a decreased amount of phosphorus and a corresponding reduction in the titer of the blood calcium. Such a change may of course be confusing from the standpoint of diagnosis.

URINALYSIS

The important diagnostic criteria in the presence of demonstrable disease of the bones are the increased blood calcium, the decreased blood phosphorus, and an increase in the phosphatase of the blood serum. A demonstration of the increased excretion of calcium and phosphorus in the urine or complete balance experiments are valuable in the study of disease, but from a purely clinical standpoint are usually unnecessary and they are certainly very time consuming and difficult procedures. If the case shows little or no demonstrable disease of the bones the phosphatase of the blood serum will be little if any increased. There is a variety of the disease that may be due to a single parathyroid adenoma that is associated with urinary calculi and symptoms, the characteristic blood chemical picture, but no obvious disease of the bones.

There is another variant of this disease that perhaps cannot be distinguished clinically from the one just cited. In this variety there are urinary calculi due to the increased excretion of calcium in the urine, high blood calcium, low blood phosphorus, no demonstrable disease of the bones, and a low blood phosphatase. At operation, instead of a single adenoma of the parathyroid tissue, all of the parathyroid glands are hyperplastic. The Boston investigators believe that this type represents a distinct clinical entity and they have described the presence in the urine of a parathyreotropic substance. In this type the parathyroid disturbance would seem to be obviously not a primary hyperparathyroidism but a secondary parathyroid effect, although to what it is secondary has not yet been determined. I have, I believe, such a case under observation at the present time on my service at the University Hospital. This case is quite a complex one, presenting the

apparently distinct features of diabetes mellitus, the menopause, a paroxysmal arterial hypertension to which most of her symptoms seem due, and evidences of hyperparathyroidism in the history of renal stones for which one kidney was removed fourteen years ago, a striking hypercalcemia of 15 to 16 mg. per cent and a consistently low blood phosphorus, one and five-tenths to two mg. per cent. There are no obvious bone changes and the renal function is excellent.

USUAL CASE IS CHRONIC

The clinical course in the usual case of a primary hyperparathyroidism is one of extreme chronicity. The symptoms in some of the authenticated cases go back for thirty years or more. Statistics indicate that women are more frequently affected than men, a difference due perhaps to the greater strain upon the calcium metabolism of women in their reproductive periods. The disease lasts for years but it may, it appears, vary very definitely in its intensity. If the patient is seen during a remission and the blood chemistry is normal, there may be great diagnostic difficulties and it may be necessary to follow the patient over a considerable period of time before the diagnosis can be certainly established. Variations in the diet are probably of some importance. A high calcium diet may serve to prevent loss of minerals from the bones but with increased danger in the formation of renal calculi.

The diagnosis is of great importance in such a case because the treatment by the surgical removal of the adenoma is so effective. If the adenoma that is usually more than a centimeter in diameter is in the region of one of the usual sites of the parathyroid gland the surgeon will have little difficulty in locating it. It may, however, be hidden in the mediastinum or even within the thyroid gland and be very difficult to find. It is most important that normal parathyroid glands be not removed or damaged, for with the sudden withdrawal of such a large amount of parathormone and the rapid diminution in the blood calcium, tetany very often occurs within a week or two after the operation. Some surgeons are now leaving a small portion of the adenoma in situ in the hope of averting a dangerous tetany. Following the operative removal of an adenoma there is a series of characteristic changes. The blood calcium drops promptly and the excessive excretion of calcium in the urine ceases. The polyuria that may have existed before the operation may change to a marked oliguria for a day or two afterward with gradual return to a normal level. The blood phosphorus remains low for some time. The blood phosphatase continues high for weeks or months lending support to the impression that the phosphatase is related to the rebuilding rather than to the tearing down of bone. In cases with marked demineralization of bones, these structures seem after the operation to have a great avidity for calcium and this may be responsible in part for the low levels reached by the calcium of the blood, for the tendency to tetany in such patients seems to a certain degree, according to Albright and his associates, to be related to the degree of previous bone decalcification. The administration by mouth of large amounts of calcium following the operation will aid in the prevention of serious tetany and at the same time furnish an additional supply for the body recalcification.

IMPROVEMENT DRAMATIC

The symptomatic improvement of these patients after operation is often quite dramatic. There is a prompt loss of the bone pains as well as of the weakness, malaise and hypotonia. In my case already referred to that was operated upon last year, the improvement was not dramatic but quite gradual over a period of eight or ten months. The result, however, has been highly satisfactory and most gratifying both to the patient and to her medical attendants.

Before passing on to other diseases of bones that may simulate hyperparathyroidism or be related in a much less definite way to the metabolism of the parathyroids, we should consider first a disease about which there has

been considerable uncertainty. I refer here to the so-called renal rickets, renal dwarfism, or renal infantilism, the more recent studies of which have led to the belief that it is really a definite form of hyperparathyroidism called by Albright[3] renal osteitis fibrosa cystica and by Park[4] renal hyperparathyroidism with osteoporosis fibrosa cystica. The disease affects chiefly children and adolescents and, as a rule, occurs on the basis of some developmental defect of the kidneys or urinary tract, as for example, congenital cystic kidneys, congenital obstructions of the ureters or the valve-like obstructions of the male posterior urethra, producing a very chronic and ultimately extreme renal disease. Park states that in the four cases in which all four parathyroids were examined they were found to be not greatly but enormously hypertrophied. Histological studies of the bones have shown the typical appearances of osteitis fibrosa cystica and not the osteoid tissue of rickets. In young people in whom the endochondral growth is still in progress characteristic changes occur in the epiphyseal cartilage quite similar to those of a very slow and chronic rickets. The calcium and phosphorus concentrations in the blood serum are subject to variations depending in large part upon variations in the renal function. With exacerbations of the renal insufficiency the inorganic phosphorus in the serum rises to great heights and the calcium concentration falls. Calcium and phosphorus balance studies indicate a somewhat greater loss of calcium and phosphorus in the stools and a slightly smaller loss in the urine than in normal control patients. The excretion of calcium and phosphorus is quite different here from that in a case of primary hyperparathyroidism with normal kidneys. The hyperparathyroidism in these cases is obviously secondary to the renal disease and is not amenable to surgical treatment of the parathyroid glands; the only hope of successful treatment lies in those few cases in which the surgical removal of urinary obstruction is practicable.

I have had occasion to point out that in hyperparathyroidism the important diagnostic criteria in the examination of the blood serum are the high blood calcium, the low blood phosphorus, and usually a high phosphatase. These three findings are rarely duplicated exactly in any other disease of the bones but their occasional occurrence has at times led to confusion. Gutman, Tyson and Gutman[5] of New York have recently published an admirable study of these factors in hyperparathyroidism, Paget's disease, multiple myeloma, and neoplastic diseases of the bones. Of their 74 cases of Paget's disease or osteitis deformans a high blood calcium occurred in only one and this was a very peculiar case that remained unexplained even after the postmortem examination. Pathological study of many cases of Paget's disease reveals no anatomical change in the parathyroid glands and it is now generally accepted that this disease is not related to the parathyroids in any way. It is not a generalized disease of bone although it may affect many bones. Phosphatase in the blood serum is high.

MULTIPLE MYELOMATA

Multiple myelomata may simulate very closely hyperparathyroidism both symptomatically and röentgenologically. The blood calcium is not infrequently increased, for example, in four of the six cases studied by Gutman. This increase in the serum calcium cannot always be explained by assuming that it is calcium bound to protein of the blood plasma that is increased rather than the calcium ions, for increase in the plasma proteins is not always present. The blood phosphorus, however, is usually normal or high rather than low. The presence of the Bence-Jones protein in the urine in myeloma is helpful from the diagnostic standpoint and a biopsy reveals the tumor cells. The phosphatase is not increased. The parathyroid glands may occasionally show evidences of hyperplasia in this disease as in other bone diseases in which destruction of bone is proceeding rapidly. Furthermore calcium stones may be deposited in the urinary passages in such cases although

this is relatively rare as compared with nephrolithiasis in hyperparathyroidism.

Gutman and associates studied 39 cases of carcinoma metastases in the bones and divided them into three groups according to the type of metastasis, namely, the osteolytic type, the osteoplastic type and the type where these two forms were mixed. They point out the number of variables that might affect the blood chemistry, namely the cachexia, the rate of involvement of the bones, and the type of metastases. They found some variation in the calcium content of the blood with increase in the blood calcium in a few cases in which the metastases were of the osteolytic type and rapidly progressing. The blood phosphorus was usually normal although it was low in three cases with marked cachexia. The blood phosphatase varied markedly and tended to be increased with widespread active osteoplastic metastases and they found also that phosphatase was increased in cases with metastases to the liver even when such metastases were not otherwise detectable clinically.

SENILE OSTEOPOROSIS

The condition known as senile osteoporosis is frequently encountered and may give rise to confusion in diagnosis. There is a generalized rarefaction of all the bones but no tumors or cysts and no polyuria or kidney stones. The blood calcium and the blood phosphorus and blood phosphatase are normal. Confusion may arise in the differentiation from mild hyperparathyroidism. Biopsy studies reveal an absence of fibrosis, a normal number of osteoclasts and a decreased number of osteoblasts, indicating the probability that the osteoporosis is the result of the normal catabolic activities in the absence of the usual reparative process. We usually supplement such patients' diets with dicalcium phosphate in full doses and perhaps other supplementary substances such as viosterol but, in my experience, with very little evidence of a favorable influence upon the bones as judged by comparative radiographs. Fortunately many of these patients, even after suffering compression fractures of the vertebræ, may become stabilized and able to carry on comfortably.

Osteomalacia is the disease in the adult corresponding to rickets in childhood. It is due to a marked disturbance of calcium and phosphorus metabolism brought about by a deficiency of vitamin D or a disturbance of absorption and excretion of these elements. It may occur in association with a persistent fatty diarrhea but otherwise is quite uncommon in this country. There is rarefaction of the bones but no tumors or cysts; the bones tend to bend rather than to break. Blood calcium is normal or low, blood phosphorus is low, and phosphatase high. Osteoid tissue is a prominent feature of the biopsy. Osteoclasts are not numerous but there is an increase in the osteoblasts. As in rickets the marked disturbance of calcium and phosphorus metabolism puts a strain upon the parathyroid glands and the parathyroid mechanism and the glands may show hypertrophy and hyperplasia but this is a purely secondary phenomenon and an attempt at compensation.

The fact that in other endocrine disturbances there may occur an osteoporosis apparently independent of parathyroid activity suggests the possibility that other glands may have to do with the metabolism of bones besides the parathyroids. It has been pointed out by Albright and others that toxic thyroids may be accompanied by an osteoporosis. Occasionally a toxic thyroid and hyperparathyroidism may occur together in the same case. Noble and Borg[6] gave a recent report in the Archives of Internal Medicine. In these cases the osteoporosis is marked and apparently actively progressing.

PITUITARY GLAND

In regard to the pituitary gland Scriver and Bryan[7] reported on the calcium and phosphorus metabolism in a case of acromegaly that showed marked osteoporosis. They concluded that it was probably due to an insufficient intake of calcium and phosphorus with a moderate increase in excretion of these substances. There was no definite evidence

in their opinion that the parathyroids or the thyroid played any part in the picture. They noted that Cushing had reported an adenoma of the parathyroids in acromegaly.

OSTEOPOROSIS

Osteoporosis is of course a feature described in the clinical picture of Cushing's syndrome that he considers due to pituitary basophilism. There has been a question whether this effect upon the bones took place through the mediation of the parathyroids or was independent of them. Freyberg and Grant[8] have recently made an admirably detailed study of the calcium and phosphorus metabolism in a verified case of pituitary basophilism. Their most noteworthy findings were: (1) the low concentration of serum phosphorus, (2) the low urinary and high fecal excretion of phosphorus (just the opposite of the normal), (3) the failure to absorb sufficient calcium and phosphorus to allow retention of appreciable amounts of these elements even though there was great need for calcium phosphate in the skeleton, (4) failure of vitamin D and other supplements to increase appreciably the absorption and retention of calcium, (5) good utilization of calcium injected intravenously. It was their impression that the patient's metabolism of calcium and of phosphorus was not characteristic of that of hyperparathyroidism.

There is one other report that I should like to cite to you. In considering the pathogenesis of hyperparathyroidism Albright and Ellsworth have noted the very early increase in the urinary phosphorus and have suggested that the parathyroids may effect a lowering of the renal threshold for phosphorus with a consequent increase in phosphorus excretion, a lowering of the blood phosphorus and an elevation of the blood calcium. It is interesting in this connection to note the report by Hunter[9] of two cases of osteoporosis associated with renal glycosuria. These cases showed a low blood phosphorus, increased calcium and phosphorus in the urine, and a slightly high blood calcium, but the level of calcium in the blood was less than would be expected from that in the urine were the case one of hyperparathyroidism. Exploratory operations showed normal parathyroids. In these cases at least the lowered renal threshold for phosphorus postulated by Hunter seems to have had nothing to do with the parathyroids.

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FIGURE SKATING

There are but four fundamentals to all figure skating: the outer edge, the inner edge, the three turn and the rocker turn, Dr. Dudley B. Reed explains in his article entitled "Figure Skating" which appears in the March issue of *Hygeia.*

All figure skating is done on the edges of the skates and not on the flat bottom except for the brief interval of change from one edge to the other. The thrust is made from the edge of the blade and not from the toe. The outer edge is the right-hand edge of the right skate and the left-hand edge of the left skate.

If the skater thrusts with his left skate, glides on his right and shifts his weight a little to the right of vertical he will make a curved tracing on the ice with the outer edge of his skate, provided that his ankle remains firm and does not flop over to the left.

TOXIC GOITRE AND ITS EFFECT ON INDUSTRY*

By NORRIS W. GILLETTE, A. B., M. D., F. A. C. S.
Toledo, Ohio

Toxic goitre is found in every state in the union, but one of its most common areas of incidence is the Great Lakes district which has been called "The Work Shop of the Nation" because of the location in this territory of many of the country's greatest industries. It is pertinent, therefore, to determine whether goitre might have an appreciable effect on industry, either from the manufacturer's or employee's standpoint, and to this end it is important to know whether goitre is increasing or decreasing in endemic areas of our country or remaining stationary. If it is decreasing, our problem becomes less important, but if it is increasing more stringent methods of prophylaxis must be instituted.

The use of iodinized salt has been considered of value in reducing the incidence of goitre, but after a careful survey made of goitre in the Toledo School System by Dr. R. M. Burton, at my instigation, it has been demonstrated that in spite of the universal use of this salt in Toledo, many pupils suffering with goitre of the endemic type have been found, most of whom have had no additional iodine as a prophylactic measure. The incidence is great enough to demonstrate that iodinized salt by itself is not sufficient to eradicate endemic goitre.

We must, therefore, conclude that the present incidence of endemic goitre will remain permanent unless individual treatment is administered.

Toxic goitre is present in 5.2 per cent women to one man in my patients coming to operation and this ratio assumes importance with the advent of more women yearly into factory and commercial work. In one Toledo factory, The Doehler Die Casting Company, a careful clinical examination demonstrated at least one out of every ten women were suffering from the effects of a toxic goitre as evidenced by the cardinal symptoms, the goitres differing in severity from mild to very severe, and nearly twice that percentage had palpable enlargements of the thyroid gland without evidence of toxicosis. There are all gradations of thyroid activity, from myxedema to a plus four hyperthyroidism, and there is no sharp line of demarkation between a normal thyroid and toxic goitre. At times the diagnosis of mild but persistent hyperthyroidism is extremely difficult. Those of a mild over-activity may remain so for years until some disease or strain activates them to a point where they do damage.

Along the sea shore, sixty per cent of all toxic goitres are of the hyperplastic or exophthalmic type, acute or fulminating, but in the Great Lakes district a majority of the enlargements of the thyroid are collodial or adenomatous in character, frequently nontoxic, or moderately so, and of long duration. The individual who has had an enlargement for a long time without symptoms frequently does not blame the goitre for causing his trouble when it appears, and attributes his illness to some other cause such as overwork, family troubles, inherent nervousness, or other disease. It is the long standing collodial goitre gradually developing into the adenomatous type that is insidious in character and does damage without the patient realizing the cause of it. The toxicity is often intermittent in activity, flaring up after an acute cold, or after long and arduous periods of labor and quieting down after rest, or improvement in the infectious process. However, the repetition of the exacerbations almost invariably increases the severity of the attacks, until they become troublesome

*Read before the meeting of the Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, West Virginia, November 9, 1937.

enough to demand medical treatment or surgery.

Unfortunately goitres do not cause pain, the nearest approach to it being the pressure symptoms or the anginal pains of the heart due to overwork. Patients appear in a physician's office only when one or more of the cardinal symptoms of goitre drive them to it, or for cosmetic reasons in the non-toxic type. In their daily work the symptoms as they increase in severity affect the earning capacity of the patients and their value to the employer. These workers find it more difficult to do their work and keep up with the competition, and the realization of this by the patient aggravates the trouble and hastens the time when work is no longer possible. Many a patient whose subsequent diagnosis was toxic goitre has come to me with the history of a gradual failing of driving power and work ability, frequently having lost his job or realizing that he is about to lose it, and all of the time not suspecting the cause of his failure, or at least not attributing a major portion of his disability to his goitre. Some of these sufferers keep on trying far beyond their capacities during this period because of their economic burdens, and often they bring themselves by their efforts, almost, if not quite, to the point where they can not be helped. Frequently in their efforts to keep working they wander from doctor to doctor, being treated for nervousness and heart trouble, having their tonsils removed, having their subluxated vertebra adjusted by chiropractors and osteopaths, embracing Christian Science, which as has been aptly put is neither Christian nor science, drinking irradiated water, taking special diets, and resorting to various procedures until eventually they succumb to the disease or are fortunate enough to locate a physician who directs their treatment into a rational method.

SYMPTOMS

In considering the reasons why patients who are suffering from goitre finally end up in a physician's office, it is important to remember that those about them, both at home and in their daily work, usually notice a change in them before they are aware of it themselves.

The symptoms that are most important are as follows:

ENLARGEMENT OF THE THYROID GLAND

The thyroid is usually at least slightly enlarged in hyperthyroidism, although the gland may be so deeply buried that it is palpated with difficulty. Normal glands weigh from 15 grams upward, varying with the individual, but the inert colloid in a small gland may be replaced with active cells producing thyroxin, so that it is possible for a small gland to be very active. This may be the type of gland that is causing the most harm, because it is not easily seen and is often overlooked in the search for the cause of the trouble. Patients are, however, beginning to realize that a noticeable gland is not necessary to produce toxicity. The irregular tumefactions are either adenomas or cysts and are objectionable in their appearance, especially to a woman. Those enlargements hinder any individual in his daily work, if they are great enough to become noticeable or can not be covered by clothing. In Switzerland where five out of seven women have goitres, the appearance of goitres are not objectionable due to their prevalence, but in our country a large nodular goitre is a distinct hinderance to any one applying for a position. If a man is a salesman his customer is so interested in watching the movements of the enlarged thyroid that he is apt not to hear what the man is saying.

Choking sensation is closely allied with the enlargement of the thyroid gland. When the thyroid is substernal or subclavicular and enlarging, it must press on the trachea producing the choking sensation. It may cause great narrowing of the tracheal lumen, but the sensation appears to be reflex. A small hard goitre wrapped tightly around the trachea gives the same sensation. Riedel's struma or the thyroid of Hashimoto's disease may become so hard and contracting as to cause a definite tracheal constriction.

Palpitation of the heart is apt to appear early in the disease. It may be the first sign of hyperthyroidism, occurring at intervals following hard exertion or becoming noticeable at night while lying down. It persists as one of the cardinal symptoms of goitre. The beating of a normal heart is not seen through the chest wall. If the apex beat is plainly felt when the hand is placed on the chest, the thyroid gland should be investigated.

TACHYCARDIA

Tachycardia follows palpitation and is a good indication of the severity of the disease. The thyroid is driving the heart by increasing the demands upon it through increased metabolic activity. Eventually the tachycardia will be so great that the heart musculature will play out, but it will maintain a relatively high rate for months and even years before it wears out enough to demonstrate valvular insufficiency. Auricular fibrillation appears late in the disease and when present is a good indication of the extent to which the heart musculature has been driven. Valvular murmurs are not evidence of thyrotoxicosis.

Comparative fatigue tests on individual muscles in normal and goitrous people clearly indicate that the reserve glycogen has been used in those suffering from thyrotoxicosis to the extent that the muscle fails in a much shorter time than that of a normal individual, depending entirely on the grade and duration of the thyrotoxicosis. In neurocirculatory asthenia the patient is rested by sleep, but in toxic goitre the patient is as tired in the morning as he was when he went to bed. Chronic fatigue is a good diagnostic symptom of goitre.

Nervousness and irritability are usually the first symptoms of toxic goitre to make their appearance. These symptoms are manifested in many ways, by marked excitability of the patient in the presence of slight accident, by evidence of annoyance over trivial things, and by inability to associate normally with others. Frequently husband and wife who have lived peacefully with each other for many years have their pleasant relationship broken by an interfering goitre in one of them and many divorces have been the result of this. A man with thyrotoxicosis who has been, when normal, a good workman in a factory annoys his associates, takes offense over fancied slights, and believes that his working conditions which previously have been satisfactory are now changed, and he either leaves his good position or becomes a soap box orator with a vitriolic tongue and makes others believe that they and he are suffering intolerable wrongs. This nervousness, together with the workman's inability to do a normal days labor, because he is continually fatigued by the increased metabolism, brings down criticism by his superiors and a good mechanic is soon out of a job due to pathology which could have been eradicated by a timely thyroidectomy.

VARIATION IN WEIGHT

Variation in weight is the direct result of a change in the metabolic rate. Due to the increased metabolism there is a need for increased fuel to burn and as a result the appetite is over-stimulated and at times the patient puts on weight, in spite of the increased need for food, but as the metabolic rate increases the need finally passes the ingestion of food and there then follows a marked loss of weight. If the appetite fails, as it may, the loss of weight is very rapid, associated with a marked loss of strength, making it difficult for the patient to do his normal work.

Eye changes develop with increased toxicity. In hyperplastic goitre there develops an exophthalmos in approximately fifty per cent of the cases. The exophthalmos is disfiguring, but more important is the fact that there may develop a stretching of the optic nerve with some injury which causes a lessening of acuteness of vision. Usually after a thyroidectomy there is some recession of the eyeballs with an associated improvement of vision, but at times the exophthalmos is progressive and may cause total blindness if allowed to continue without relieving the pressure behind the eyeballs. Naffziger's operation is now saving the vision of some of

these sufferers. In addition, without the disfiguring exophthalmos, there is usually some change in the vision in cases of toxicity of long duration or marked severity and after the thyroidectomy the vision improves for some period of time. The glasses that the patient has worn before the operation are unsuitable after operation, necessitating a change in them. It is not advisable to have them refitted, however, for a period of six months after thyroidectomy because improvement is gradual and progressive for at least that duration, but after six months an optic status quo has been established.

GASTROINTESTINAL SYMPTOMS

Hyperacidity and chronic indigestion are common in cases of well advanced toxic goitre. Patients have had their gall-bladders removed without improvement, when in reality the trouble was due to the thyrotoxicosis. The overloading of the stomach due to the increased appetite of these people, aggravates the gastric instability.

All of these symptoms may not appear in the origin of the disease, but will probably follow in irregular order and severity. They are constitutional symptoms effecting the individual's ability to work, but giving ample warning, not as acute appendicitis or pneumonia in which an individual is perfectly well one day and totally disabled the next, but hanging out the red flag of danger for months or years, warning the sufferer to care for himself. In individual instances I have known of a goitre patient losing control of himself and allowing a valve to open, spraying hot metal over other workmen and himself. Another individual, too fatigued by the ravages of his thyrotoxicosis to attend to a valuable boiler, allowed it to be burned out. Still another toxic individual originated an argument which brought on a melee in a factory and stopped two days production. Such instances, if carefully looked for, can be found frequently, but it is only after examinations that they are connected with goitre. In many factories only a casual examination, if any, is made of the thyroid gland at the time of employment. Herniæ, which are made much of, may not be doing as much harm but may eliminate the man from employment whereas the moderately enlarged thyroid gland causing tachycardia, and frequently increased blood pressure, are overlooked, but their damaging effect on the individual and the factory may be as great as that caused by any other disease, for the thyrotoxic individual is kept working while in an unrecognized but none the less dangerous condition.

This paper is written because of my desire to bring to the attention of the profession, particularly those physicians engaged in the examination of applicants for positions in industry, the advisability of carefully examining the applicant for evidence of symptoms of thyrotoxicosis in order that both the employer and workman may be protected from damage resulting from goitre. Brought to a realization of the endemic character of the disease by many surveys that have been made, it behooves physicians engaged in industrial work to examine workmen for thyrotoxicosis as carefully as they are examined for any other physical defects. In the incipiency of goitre much can be done by medication to abort it and when found, advice as to treatment should be given. Also, thyroidectomy should be advised in active cases with the idea of conservation of valuable workmen and protection to the industry.

320 Michigan Street

PARASITE CONTROL

Sometimes the margin of safety between plenty and want depends on man's ability to control parasites that will take his food supply if he is not smart enough to stop them, Dr. George A. Skinner declares in the first of a series on "Parasite Tricks" that appears in the March issue of *Hygeia.*

Indeed, man's ability to continue existence on the earth is by no means a certainty, as the insects are in many ways much better prepared to survive here than he is. If he can't "outsmart" them the chances for his joining the mastodon and dinosaur are good.

NYSTAGMUS, AND SOME PHASES OF LABYRINTHINE DISEASE

By V. E. HOLCOMBE, M. D.
Charleston, West Virginia

WHILE a host of observers including Flourens, Ewald and Barany have studied the human labyrinth and have given us deductions of tremendous importance in regard to the labyrinth in disease, we know comparatively little of the function of the vestibular apparatus in health. We know that the labyrinth is not essential to equilibration, because after its removal the power of the individual to orient himself in space is soon reestablished. By a similar course of reasoning, the theory of Ewald that the labyrinth governed the tone of the skeletal muscles must be discarded. Kerrison had the privilege of observing two individuals in whom both labyrinths were totally and permanently ablated and these persons seemed to be rather above the average in muscular strength and potential efficiency. Whatever the exact function of the vestibular apparatus may be, it is fairly certain that the essential structures are the cristæ acusticæ of the semicircular canals and maculæ acusticæ of the saccule and utricle. Histologically and physiologically there seems to be an analogy between these structures and Corti's organ as both are covered by highly specialized neuroepithelium from which hair processes project.

Ewald in his interesting experiments on semicircular canals of pigeons proved that the movement of endolymph in each semicircular canal causes nystagmus in the plane of that canal and that the relation between the direction of the endolymph movement in any canal and the direction of the resulting nystagmus is definite and constant; also by reversing the endolymph movement in any canal we can reverse the direction of the induced nystagmus.

Barany's experiments with caloric reactions are equally well known, water appreciably below body temperature causing nystagmus to the opposite side and water appreciably above body temperature causing nystagmus to the same side. The reactions are due to chilling or warming the endolymph, causing currents in it to rise and fall in conformity to the physical laws governing the behavior of fluids of different specific gravity.

Every labyrinth is connected with both eyes and influences both eyes. This we know, all else is theory. When fibers of the central pathway of labyrinth (that is fibers between the nuclei of third, fourth and sixth nerves and Bacterno's nucleus and the spinal acoustic root which contains Deiter's nucleus) are destroyed, we have no nystagmus, but this is not true for falling reaction because other fibers come in from the cerebellum, striate body and cerebrum, and govern this reaction. We may say then that falling reaction is localized in a large part of the brain while nystagmus is localized in a small piece of the brain and hence more important for diagnosis.

Fibers of the vestibular branch of the acoustic nerve which go into the cerebellum control the pointing test but the exact connection of these is not known.

Spontaneous nystagmus is of two kinds: Oscillatory and jerky. Every labyrinthine nystagmus is jerky, but every jerky nystagmus is not labyrinthine. Only labyrinthine nystagmus has a quick and a slow component. The oscillatory nystagmus has two movements which are the same in frequency and amplitude. We name the direction after the quick component. This is an error, as the direction of the nystagmus is really represented by the slow component, the quick component representing the central reaction or effort at readjustment. The nomenclature was instituted by the early writers who did not understand

the significance of the two components and since the quick component was more impressive, the direction was named for it.

Labyrinthine nystagmus is intensified when the patient looks in direction of the quick component.

Types of nystagmus:

Non-labyrinthine,

Labyrinthine.

Non-labyrinthine: Fixation nystagmus is found in many conditions such as epilepsy, spasmophilia, tetany, and gastrointestinal upsets. It is pathologically exaggerated movements of the eye. We find it also in numerous eye conditions as retinitis pigmentosa, choroiditis, high myopia, and high degrees of astigmatism. In these conditions it is to be interpreted as an effort toward fixation on the part of the eye. Every fixation nystagmus is oscillatory in type. Vertical nystagmus may or may not be labyrinthine. It is labyrinthine only when accompanied by turning dizziness. Other diseases which produce vertical nystagmus are brain disease in the part of the spinal acoustic root which lies between the pava and the corpora quadrigemina. The most common conditions are encephalitis, cerebellar tumors, and temporal lobe abscesses which break into the ventricle. In cerebellar tumors pressing on the corpora quadrigemina, we get vertical nystagmus but the prognosis is bad for operation is impossible. Temporal lobe abscess with vertical nystagmus means that pus has already broken into the ventricle and the prognosis is bad.

CAUSES OF NYSTAGMUS

Nystagmus may be unilateral. Any condition which interferes with good fixation, function of the labyrinth or of the posterior longitudinal bundle may cause nystagmus. Pseudo-nystagmus consists of the larger rhythmic movements which occur at the extreme limits of normal movement and should be differentiated from true nystagmus. It may be unilateral or bilateral. It occurs in hereditary ataxia and in multiple sclerosis and sometimes in those who are healthy. Diplopia occurring with nystagmus usually means disease of the central nervous system. In visual nystagmus, the excursions of the eyes are equal in each direction and smooth in character while in labyrinthine nystagmus there is a slow and a quick component. Rare forms of nystagmus are:

1. Disjunctive nystagmus, in which the eyes swing toward and away from each other.
2. Dissociated nystagmus, which has very dissimilar movements in both direction and degree.
3. Unilateral nystagmus.

FRIEDREICH'S DISEASE

Nystagmus occurs at times in cerebrospinal meningitis. It occurs in Friedreich's disease, in which it is horizontal and less rapid than in multiple sclerosis, in Mongolian idiocy, and in multiple sclerosis. Miner's nystagmus occurs frequently in patients where safety lamps are used. Since vision is accomplished almost entirely by the rods it is better 15 or 20 degrees from the fovea and nystagmus results from effort to stimulate more retinal elements.

Labyrinthine nystagmus is either central or peripheral. By peripheral nystagmus we mean nystagmus induced by lesions of the labyrinth or the vestibular nerve. By central we mean nystagmus induced by lesions of various nuclei and fibers central to the acoustic root.

The two forms of typical labyrinthine nystagmus are horizontal and rotary, the latter type being practically always seen and it indicates that all the canals participate in production of the nystagmus and that labyrinthine disease is seldom limited to one canal. In peripheral labyrinthine nystagmus we see harmony in intensity of nystagmus and dizziness. In central labyrinthine nystagmus we may have discrepancy between the degree of dizziness and nystagmus. In peripheral labyrinthine nystagmus the patient falls in the direction of the slow component and the falling reaction is usually dependent on the head being in normal relationship to the body. In central nystagmus the patient may fall in the direction of the quick component and this

falling is as a rule independent of the position of the head. In nystagmus combined with recurrent laryngeal paralysis, if the patient has a right-sided nystagmus and a right recurrent laryngeal paralysis we know that we have an affection of the dorsolateral corner of the medulla oblongata on the right side. Here four diseases are common. They are encephalitis, syringomyelia, disease of the posterior inferior cerebellar artery and disseminated sclerosis.

Irritation of the labyrinth by disease may give nystagmus to the same side, to the opposite side, or to both. Destruction of the labyrinth gives nystagmus only to the opposite side. In labyrinthitis we are interested only in whether hearing is present or not present.

CIRCUMSCRIBED LABYRINTHITIS

The cochlea when once involved is easily destroyed and we usually do not have a localized process in it. In the labyrinth, however, we often see a localized serous or suppurative process which does not spread to the cochlea. It is probable that this occurs by the gradual formation of a fistula and the gradual formation of adhesions which act as a barrier against its further spread. Preservation of hearing is really the differential point between the circumscribed and the diffuse lesions. The manifest symptoms may subside and in two weeks the patient may present no vestibular symptoms, having reached the latent stage corresponding to the latent stage of diffuse purulent labyrinthitis. The infection may spread to the cochlea at any time, but so long as the cochlea functions we do not worry about intracranial invasion. The thing to do is the radical mastoid operation in order to remove infective material from contact with the labyrinth with the hope of a resolution of the process. Clinically we can recognize only circumscribed labyrinthitis and we do not know whether it is serous or purulent. If the whole labyrinth is involved we have a diffuse labyrinthitis and here we are able to distinguish the serous or purulent nature of the disease. If you destroy the labyrinth suddenly, the severe symptoms last from three to fourteen days. In case history of dizziness is not given, probably vomiting will have occurred and in some cases the patient may have had several prescriptions. This is especially the case with latent purulent labyrinthitis. There is a history of vestibular symptoms in the attacks consisting of dizziness. The present symptoms may or may not have dizziness. We may have nystagmus to the same side, to the opposite side, to both sides, or no nystagmus. Hearing is present, as are caloric reactions. Vestibular reaction to turning is present. Fistula symptom test is present. The treatment is the radical mastoid operation.

DIFFUSE SEROUS LABYRINTHITIS

Dizziness is present in the history of the attacks. Present symptoms consist of dizziness and vomiting. There is nystagmus to the opposite side. Hearing may be present or absent depending on the toxic effect. The caloric test may elicit response or it may not. Turning may or may not elicit response. Fistula symptom test is not positive as this is advanced circumscribed labyrinthitis. As in the diffuse suppurative form it occurs in the course of a chronic ear. During the acute form the symptoms of the two lesions are practically identical. If function returns, the condition is diffuse serous; if not, it is diffuse suppurative. Severe headaches are supposed to be distinctive of the suppurative type. However, there are numerous cases of headache recorded in which almost complete restoration of function is the case. This was probably due to slight serous inflammation of the meninges. Diffuse serous labyrinthitis does not obtain for a long period of time. It either clears up or becomes purulent as indicated by the lack of all response to cochlear and vestibular stimuli. The time for this transition is usually two or three weeks, at which time it has been improved or has become suppurative. The treatment is radical mastoid operation. In this type of labyrinth-

itis, if all response disappears one may wait safely for a day or two to see if vestibular function returns. If it does not, and meningeal symptoms such as headache, temperature and cloudy fluid occur, the labyrinth operation must be done at once.

Diffuse Purulent Manifest Labyrinthitis; history shows one severe attack of dizziness for three to fourteen days. Dizziness and vomiting are present. There is nystagmus to the opposite side. Hearing is gone as the labyrinth is destroyed. Caloric tests give no response. Turning gives no response. Fistula symptom test is negative and we usually have a fistula but the labyrinth is destroyed. The treatment is the labyrinth operation.

DIFFUSE PURULENT LATENT LABYRINTHITIS

Vestibular symptoms are present early in the history. These may consist only of vomiting. There are no present symptoms, no nystagmus. The hearing has been destroyed for a long time. There is no response to the caloric test or the turning test. The fistula symptom is absent as the labyrinth has been dead for a long time. Some surgeons are willing to risk the radical operation under these circumstances but if any operation is done it is best to do the radical followed by the labyrinth operation as the radical alone is apt to stir up the latent process in the labyrinth and produce a fatal meningitis. When a radical is contemplated we must find out whether or not the operation is dangerous. Feroni found that in all cases which died of meningitis (excluding sinus thrombosis and brain abscess) the disease went through the labyrinth. He reviewed his cases which died of meningitis after a radical operation, and found that all had a labyrinth suppuration, so the conclusion was when one has labyrinth suppuration and contemplates radical operation, it must be remembered that operation (radical mastoid) will probably stir up the process and cause a meningitis. When the labyrinth is not entirely dead the radical operation is permissible. When the labyrinth is entirely dead, we must do the labyrinth operation or nothing. It is better to do nothing than a radical only, where the labyrinth is dead as in diffuse purulent manifest labyrinthitis and diffuse purulent latent labyrinthitis. This is especially important in the latter type where the patient is having only a discharge and if operated upon, the patient is dead in three days of meningitis. If one operates upon a circumscribed labyrinthitis and on the third or fourth day the patient begins to have dizziness and nystagmus, one must test out the patient, first testing the hearing by putting noise apparatus in good ear. If patient hears, we know that he has a serous labyrinthitis and we do nothing. If patient does not hear, we do a caloric test, but with warm water as patient usually has a nystagmus to the opposite or healthy side, the result being to diminish or to bring the nystagmus over to the sick side. If the caloric test is negative, a fistula test should be done by touching granulations over the horizontal canal or oval or round windows with a probe and if the test is negative and brings no response, the labyrinth operation should be done.

In diffuse purulent latent labyrinthitis, at the end of second or third month, fibrous tissue and bone sometimes replace granulations and pus, and we have a labyrinthitis ossificans. This represents a lucky outcome. One cannot tell clinically when the case changes from the purulent to the fibrous or osseous stage. Hence shall we operate in this dilemma? Who can tell?

DISCUSSION

J. Hallock Moore, M. D., Huntington: The essayist is to be congratulated on his complete exposition of this little understood symptom and one of its etiological factors, labyrinthine disease. He has covered his subjects excellently. Unfortunately, our progress in this field has advanced but little from the days of Barany, Ewald and Florens.

Nystagmus, a symptom without a consideration of which no neurotological test is complete may be caused by toxins, ocular disturbances, labyrinthine disease, intracranial complication of mastoiditis,

acute catarrhal otitis media, and a variety of other conditions. One of the latter occurred in a post-operative jugular bulb thrombosis in which a lateral nystagmus followed a jugular ligation, probably due to an increased venous flow through the superior petrosal sinus. This lasted about three days, after which the nystagmus ceased. A final caloric test upon this labyrinth has not been made to date, but the hearing in the affected ear was normal when subsequently tested. This was probably a stimulation of the posterior canal.

Nystagmus, per se, means little more than any other bodily sign, but when coupled with aberration in hearing; past pointing, poor pelvic girdle movements, a positive Rhomberg test, or other neurological findings helps the otologist in both localization and lateralization of the more serious intracranial mastoid complications. For instance, in cerebellar lesions we find poor pelvic girdle movements; a marked tolerance to the vestibular tests; interference with past pointing and vertigo responses; and predominate signs of intracranial pressure. In cerebellar pontine angle lesions one discovers a complete loss of functions of the VIII cranial nerve accompanied with a loss of function of the vertical canals on the opposite side, but with good functions of the horizontal canal and hearing. Supratentorial lesions render the subject more susceptible to the vestibular stimulation, conjugate deviation of the eyes to the side of the lesion, exaggerated nystagmic responses over vertigo and past pointing reactions and no evidence of cerebellum lesions, although, increased intracranial pressure may interfere with the stimulatory results from the vertical canals.

As to labyrinthine disease so aptly brought out by the essayist, I feel much as one of the older otologists once stated in his textbook, "A case of suppurative labyrinthine disease is safer in the hands of the internist than in the hands of an otologist." This statement is due to the prognosis with and without operation, which I believe averages nearly a 50 per cent fatality in either case. In the hands of a Neumann these figures may be exaggerated, but throughout the world today they stand as very nearly accurate. However, a diagnosis should always be made and the essayist has given valuable assistance to us in making the same.

In closing, I remember a case that occurred during my sojourn in New York City. One of the attending surgeons of a large clinic while performing the radical mastoid operation was much chagrined in examining the contents which he had removed from the middle ear to find the stapes among the same. Instead of following the otological principles laid down in nearly all textbooks of performing an immediate labyrinthectomy he simply packed the cavity with idioform gauze and took a chance. I, subsequently, learned that the patient made an uneventful recovery.

NOSE BLOWING

There is one right way and several wrong ways to blow one's nose, and Dr. Solomon Malis discusses them all in his article "How to Blow Your Nose" appearing in the March issue of *Hygeia*.

Several serious disorders may result from improperly blowing the nose; among these are abscesses of the ears, mastoiditis, sinus troubles and impaired hearing. Hence a little instruction and certain precautionary measures might prevent much later misery.

The correct method of blowing the nose consists of placing the handkerchief immediately above the nasal bones, or the "bridge," with one or both hands, at all times keeping the nostrils open, and then blowing.

For better understanding a certain amount of anatomic consideration is essential. At the back part of the nose canal, on each side, are the openings of the eustachian tubes, which lead to the middle ear. In the adult the tube has an oblique upward course, being about one and one-half inches long and one-twelfth inch in diameter.

These tubes are normally collapsed, the nasal ends opening only when one swallows, yawns or raises the palate. In children the tubes are shorter, wider and less tilted, thereby offering greater accessibility to germs. Such infection is usually facilitated when the child coughs or blows his nose incorrectly. The function of the tube is to allow air to enter the space inside the ear drums, thus equalizing the air pressure.

The eustachian tube opens into a tiny space, termed the middle ear, a space one-third inch in length and height, but only one-sixteenth inch in width. Within this are housed three bones, muscles, ligaments and nerves.

When the handkerchief is used at the nose, partially pinching shut the nostrils and then blowing more or less violently, the air is forced against the nearly closed openings and offers considerable resistance to the passage of the nasal mucus, forcing the material back in the rear of the nose.

INDUSTRIAL MEDICINE AND THE CONTROL OF SYPHILIS*

By ROY R. JONES, M. D.*
Washington, D. C.
Passed Assistant Surgeon U. S. Public Health Service

PREREQUISITES for the effective control of any communicable disease are: (a) An informed public; (b) Means for finding those affected; (c) Provision of treatment at a price those attacked can afford to pay.

The workers' interest in this nationwide campaign against syphilis, and modern trends in the practice of industrial medicine will prove to be most helpful factors in the promotion of an effective program to stamp out this most serious of communicable diseases. Only recently has it been possible to publish widely in this country, in frank and forceful language, the truth about this disease. The prevention of syphilis and its serious after effects is truly a public health problem and the public's interest will parallel the public's knowledge of the number of people affected, how syphilis is spread, and how it may be prevented and cured.

The medical profession has been familiar with the facts concerning syphilis for many years but the conventional taboos have obstructed the giving of any wide publicity to this knowledge. At present practically every health agency in the country—municipal, county, state, and federal—is mobilizing for this war on syphilis. The medical profession, as it has done in the case of other communicable diseases, is supporting this public health program and giving unselfishly of its own time and efforts.

Each year more than 1,000,000 Americans contract syphilis,[1] four times as many as suffer from scarlet fever, 10 times as many as are attacked by diphtheria, and 100 times as many as develop infantile paralysis.

Syphilis is more dangerous than these other common diseases because its effects upon the individual continue for so long a time. It does not kill early in its attacks, but 10 to 25 years later. Aside from being physically ill, the individual with syphilis is, from the first sign of infection, mentally ill. The person suffering from pneumonia may be shocked to know that he has so serious a disease and express fear that he will die. However, when the crisis comes, fear is gone and recovery is hastened. Not so in the case of the fellow who learns that he has syphilis. It is not the fear of death that haunts him. Many express the wish that they might die. They know that this disease must limit their associations with others for some time; that it may possibly affect their immediate families; that it will take two years or more to effect a cure and that at a cost which they are often unable to pay. It is estimated that there are over 40,000 deaths each year from cardiovascular syphilis and 5,600 deaths from insanity and paralysis due to syphilis. There are some 43,000 mental and nervous cases caused by syphilis, which are cared for in public and private institutions in the United States. Fifteen per cent of all blindness is due to syphilis.[2]

Not all syphilitics are dead or living in public institutions. The loss of life and cost to the public for the support of those disabled by syphilis represent but a small part of the economic losses resulting from this dangerous disease. We have no way of estimating this expense. This phase of the problem is of utmost importance to labor and industry. How can a man work efficiently and safely when he discovers he has contracted this disease? At first, worry over infecting others,

*Detailed as Adviser on Industrial Health, to Division of Labor Standards, U. S. Department of Labor. Read before the Kanawha Valley Mining Institute, Montgomery, West Virginia, on September 9, 1937.

the cost of treatment, and like problems are enough to lessen the amount of work the individual may do and at the same time make him more accident-prone. Later, if he is not successfully treated, the syphilitic may be more susceptible to fatigue, and convalescence from other illnesses and injuries may be prolonged.

FIFTY PER CENT BLAMELESS

One of the greatest forces tending to override the taboo on publicity that has been in effect for so long is the realization that, when childhood syphilis is included, nearly 50 per cent of the more than a million cases reported each year have been found to have contracted syphilis through no fault of their own.[3] Public health agencies can no longer neglect the responsibility attached to these cases of innocent infection.

Public health methods in controlling the spread of a communicable disease are applicable to groups more than to the individual. Diphtheria is chiefly a disease of early childhood and our method of attack has been to practice case detection and prevention especially upon those included in the preschool and early grade groups. Communicable syphilis affects chiefly those in the age groups from 20 to 40. A large portion in this age group are gainfully employed. Just as our slogan has been "The school should be the safest place for our children," (we now believe that) work places can be made the safest place for those employed. This can best be accomplished through the application of our knowledge of preventive medicine to the illnesses affecting these age groups in particular.

Prior to 1915, industrial medical practice was devoted chiefly to traumatic surgery and the treatment of occupational skin diseases. Many of our present industrial physicians were really initiated into group practice during the World War. Physicians thus trained have assumed leadership in the improvement of industrial medical practice, which in the last two decades has come to emphasize preventive rather than curative medicine. Managements and workers alike are alert to the benefits of this type of service once it has been established. In promoting a program for the control of syphilis, public health authorities naturally look to these leaders in industrial medicine, who now so justly enjoy the confidence of both employer and employee.

Group medical services and medical departments in industry have probably developed to a greater degree of efficiency in the United States than in other countries. Just as our system of private practice has placed the healing arts on a par with or above that level attained in countries where state medicine is popular, so without a doubt will group practice methods and the type of ethical industrial medicine so rapidly gaining favor, strengthen our present system of private practice. This will lessen the need for state participation in the prevention of disease and the provision of treatment to a large group of our citizens.

Industry, in its enthusiasm to aid in this war on syphilis, must not lose sight of the fact that syphilis is primarily a problem of the affected individual and the public, and only secondarily a problem for management. Strict and ethical patient-physician relationship must be maintained if we are to have the continuous coöperation of those affected with the disease.

ADVANCES MADE

It is only fair to say that the greatest advances made in the control of syphilis in this country in the last 10 years have been made by industrial health groups. The National Association of Railroad Physicians as early as 1926 drew up a definite venereal disease program for their industry. About 20 per cent of 46 railroads employing 600,000 men report having made blood tests a routine part of the physical examination of applicants.[3] In their case finding program they have found that approximately 7.8 per cent of all blood examined proved positive.[3] About 1928 the operators and workers in the tri-state zinc and

lead fields established diagnostic and treatment facilities for the workers in that area.[4] Here about eight per cent of the bloods examined proved positive. One of the later reports concerning an industrial medical department's attack on syphilis is that published by Dr. G. H. Gehrmann, medical director for the E. I. du Pont de Nemours Company.[5] This company employs about 37,000 workers. All applicants are given a blood test; blood examination of older workers is voluntary, and more than 90 per cent have requested that it be made. Four per cent of 36,794 blood examinations were positive.

FIVE PER CENT POSITIVE

Some 150 miscellaneous industrial establishments have reported to the Public Health Service that they have examined nearly 150,000 workers, and have found that about five per cent of all blood tests made are positive for syphilis.[3]

Just as community programs for the control of smallpox, typhoid fever, and other communicable diseases must necessarily differ somewhat in their attack, so industrial programs designed to control the hazards due to syphilis will differ somewhat in detail. To be effective, all must devote their best efforts toward educating employees in the essential truths concerning syphilis. There will be but minor differences regarding plans for case finding. Blood examination will be considered an integral part of all preemployment and periodic physical examinations. The medical departments in some of the larger establishments may set up their own laboratories for testing blood, others will depend upon state or municipal laboratories for reports on specimens submitted.

To be effective these programs must be continuous; to remain in continuous operation they must be conducted on a high plane, one which will earn the confidence of the workers. Without voluntary submission of the employees for blood examinations, but few cases will be found. Workers will not permit routine taking of blood samples if the results of the examinations are not kept confidential between themselves and the physician who is to treat them. Unless the industry makes treatment available through its own medical department, there is no reason why reports on individual cases other than cases in the communicable stage should be returned to the medical department. While it is true that latent syphilis may contribute toward accidents—and for that reason industry is vitally interested in knowing who has syphilis—to demand that the medical department not rendering treatment be informed regarding all positive cases, will result in a great decrease in the number of workers cooperating. Many individuals who learn that they have syphilis will take treatment, provided it is available at a price they can afford to pay. So, in the end, industry and workers will benefit most by treating the results of examination in strict confidence, thus retaining the continued coöperation of the greater majority of all concerned.

INDUSTRIAL RESPONSIBILITY

After an industrial medical department has conducted a real program of education regarding syphilis for employees under its care, and has set up means for finding all workers who may have contracted syphilis, it has only partly fulfilled its responsibility. The successful treatment of this disease is expensive and prolonged. Although the workers have been told about the need to continue this treatment, many of them will be financially unable to do much about it. The State Health Department in some instances may contribute toward the expense of treatment by providing the drugs used in the industrial clinic at cost, or to a limited extent it may furnish drugs free to those unable to pay for treatment. In particular, for cases in the communicable stage, early treatment by a capable family physician should be encouraged. When it comes to the necessary finding of contacts, the private physician has a greater opportunity to do this job completely. Where he fails, the local or state health officer is ready to step in.

The practice of medicine has developed so rapidly in so many different and somewhat unrelated fields, it is with little surprise that we learn that some of the leading general practitioners have not kept abreast of present knowledge regarding the diagnosis and treatment of syphilis. The conscientious industrial physician should make it has business to learn the type and extent of treatment provided by their family physician to men under his care.

DR. GEHRMANN'S REPORT

In Dr. Gehrmann's report of the program conducted by his organization he states that to date all positive cases have been referred to outside physicians for treatment. He makes several interesting statements regarding his experience with this procedure and submits his conclusions. They are as follows:

"1. Most physicians demand prices for treatment that are beyond the means of the individual and out of reasonable proportion to their incomes. Some physicians maintain these high prices despite the fact that they are receiving arsphenamine, neoarsphenamine and bismuth free of cost from their state.

"2. Many physicians refuse to treat the referred cases, stating that no treatment is indicated, in spite of four plus Kahn and Wassermann reactions although the cases have never received adequate treatment.

"3. Numerous physicians refuse to admit that their patients have syphilis (again in the face of four plus Kahn and Wassermann reactions). This group denies the validity of blood tests and states that they have known their patients for years, and further know that these same patients could not have contracted syphilis without their (the doctor's) knowledge.

"4. On several occasions the attending physician has sent a blood specimen to a private or state laboratory and the report has come back that the reaction is negative. In every instance the results obtained by the company laboratory have been corroborated by subsequent check, but the attending physician has not always admitted that the patient has syphilis.

"5. Many cases are discharged as having had sufficient treatment, after three to ten injections of neoarsphenamine without a heavy metal.

"6. Some have been reported as being well after a few mercury inunctions or a few intramuscular injections of water-soluble bismuth.

"7. Some are being treated with pills and nothing else.

"8. Treatment at the free clinics is very satisfactory but it is not always possible for employees to conform to clinic hours and in some places the clinics refuse to treat any patient who is employed."

Dr. Gehrmann concludes his article with this comment: "It does seem advisable for the industry to take over the entire management of those patients and thus insure them continuous and proper treatment."

POLICIES BEING FORMULATED

Policies in regard to carrying out a syphilis control program in industry are now being formulated. The Public Health Service is frequently asked to render advice on how to inaugurate a syphilis control program for a specific industry. We have no set plans to submit, but in reply give them information regarding the practices of some of the more complete industrial programs now in force. The following points summarize those steps which we feel should be included:

1. A thorough educational campaign which will give employees in general an understanding of the problem of the disease is a contribution which industry is well equipped to make. The factory group is a relatively homogeneous group. Syphilis will not be conquered until we face it in the same systematic way we face an epidemic of any other disease. Similarly the infected person must receive the same initiation into the problems of his disease that a diabetic is given into the peculiarities of his diet.

2. Blood tests should be a part of the applicant's physical examination at the time of employment. The return of a positive result may justify a short delay in employment until treatment is begun and the infectious

stage is passed. It should not be ground for the rejection of the applicant. Syphilis to modern medicine is just another communicable disease, and it is more definitely curable than most serious diseases.

3. Blood tests should be a part of routine physical examinations. Treatment may properly be insisted upon, especially in jobs hazardous to the worker or to others. In this case, however, a responsibility rests upon the medical examiner to see that proper care is available from a private physician, a public clinic or the industrial medical service, at a fee well within the employee's ability to pay.

4. In line with the best practice of industrial medical officers the privacy of the medical officer's findings should be maintained as a matter between the medical department and the employee. Most states ask only for a number or initial of the patient so long as he takes treatment. In many ways the industrial medical service has real advantages over the public clinic as the latter is usually operated. It treats many diseases and injuries. Attendance at the polyclinic of the company need arouse no curiosity. It is usually on the job where a minimum of time need be lost. All these things contribute to the possibility of privacy and anonymity.

5. There is another field in which industry may make a special contribution. Blood tests, case finding and treatment have been the objectives of the educational campaign carried on by public health and medical authorities thus far. It is the correct emphasis for a nation in which more than 1,100,000 cases of syphilis—early cases and old—report for treatment every year. The first step in control is to find current syphilitics and to cure them.

Prophylaxis has not been emphasized. It is in many ways a problem for special groups. Education for the prevention of syphilis is approached differently among groups of young men, young women, college students, industrial workers, and military forces. It may be that industrial medical services, coming as they do in continuous contact with homogeneous groups, may make major contributions to medicine in education for venereal disease prevention.

6. Unless highly competent treatment can be arranged through private physicians or public, private or cooperative group clinics, at prices ordinary wage earners can afford, industrial medical services should treat syphilis. Such treatment is being extended as part of regular medical service in some places; treatment is being supplied for the cost of the drugs used in others.

THE WRONG POLICY

In dealing with either applicants or employees a policy of rejection or discharge, will serve principally to drive the cases under cover, to replace the recently broken moral taboo with a good economic reason for secrecy. If such a policy became general, it would send all syphilitics to the public relief rolls and deprive them of the income upon which their ability to take treatment would depend.

Moreover, as Doctor Joseph Earle Moore of the Johns Hopkins Hospital has written recently,[6] "the paretic executive is perhaps more likely to do harm to the affairs of the company than the comptometer operator or the common laborer with latent syphilis. * * * If the laborer is to be fired solely because he has syphilis, so should the syphilitic executive as well."

There is no intention on our part to set down a closed policy for the industrial control of syphilis. Neither do we propose to set forth the average or existing practice, or even of selected existing practice, as an example of an optimum policy. If it seems wise to formulate a recommended policy for the industrial control of venereal disease, the method which was adopted some two years ago for the state and local programs is the more desirable.

At that time the Public Health Service foresaw an administrative problem. Congress was appropriating $8,000,000 under the

Social Security Act for public health purposes. It would be distributed through grants-in-aid to the states. States, cities and counties would be confronted with the problem of building up effective venereal disease control programs.

RECOMMENDATIONS PUBLISHED

An advisory committee to the Public Health Service was set up. It included the Assistant Surgeon General in charge of the Venereal Disease Division. It included the heads of leading private clinics, state and city health officers. After several months of consideration this group adopted and the service published recommendations for state and local venereal disease control programs. It brought together and made available the essential features of the programs of Scandinavia, Great Britain, and such American states as Massachusetts and New York which had made the greatest progress in venereal disease control. It was a cooperative, professional, rather than an imposed, authoritative, enterprise. It is out of such a relationship between industries and the Public Health Service that leadership in syphilis control in industry must come.

The method of joint cooperative action is one to which the service has long committed itself. The report on state and local programs set forth recommendations, not a hard and fast program.

Similar cooperative endeavor between five principal private clinics and the Public Health Service have improved the diagnosis and treatment of syphilis during the past half dozen years.

Firm establishment of the local public health program is hardly less vital to industry than the programs set up within its own organization. In all but the largest organizations, industry will depend upon state laboratories to perform the blood tests, even when the specimens are taken in industrial clinics. In cases where the industrial clinic does not undertake treatment, many wage earners will have to depend upon public clinics or physicians receiving free antisyphilitic drugs, in order to get treatment that is within their means.

It will be an expensive program. But to the extent that it is effective its cost will decline rapidly. We would have only 26,000 cases annually, instead of more than a million, if our rate were as low as that of Denmark. And when the proposal for adequate venereal disease control appropriations is presented in your community, remember this: No sum yet suggested for syphilis control begins to equal what syphilis is costing us now. The cheapest thing we can do with our million annual cases of syphilis is to treat and cure them.

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HEART MURMURS IN CHILDREN

Do not become alarmed when you discover that your child has a heart murmur, for most of these murmurs are functional, declares Dr. H. A. Slesinger in his article entitled "Heart Murmurs" in the March issue of *Hygeia.*

There is no need for alarm when a heart murmur is found in the child; it means simply that a heart murmur has been discovered and that the child should have further examinations made in order to determine whether or not it is organic.

The important thing is that a conclusion be reached, however. For if it is organic, where there is real disease of the heart valves, several changes must usually be made in the child's daily regimen in order to prevent complications. He most certainly should not engage in athletics.

DOCTORS' BILLS AND THE LAW *

By J. CLARK BRIGHT, Attorney-at-Law
Keyser, West Virginia

I HAVE been asked to speak to you tonight on the subject "Doctors' Bills and the Law", but I will put it in plain and direct language and say, "The Collection of Your Professional Bills." As a lawyer, I see no good reason why the doctor's bill should not be paid by the debtor or enforced by the creditor, the same as any other just and honest obligation.

If the doctor encounters difficulties in applying accepted business methods, he will undoubtedly be confounded by legal procedures. Just as medical terminology is obscure to the layman so legal phraseology is most confusing to the practitioner. Anyone seeking to collect money due him may easily become confused in the maze of intricate laws specifying as to who may be liable for a debt, providing certain courts for the creditor's use depending upon the size of the claim, proper papers to be filed to institute an action, limitations of various periods on different kinds of claims to "outlaw" or bar collection, exemptions of varying amounts allowed by law to different classes of debtors to save them from paying their honest bills, and numerous other complexities.

Few days pass without the physician performing some act with legal implications. Certainly this is true in his financial relations with patients. If he decides to enforce payment of an account, the law specifies exactly how it must be done. If there is a question as to liability for payment of his bill, the law defines who is responsible, and the extent of the responsibility. In fact, there are provisions as to how the doctor's financial records must be kept in event there is litigation. It is apparent then that the doctor should have a fundamental knowledge of those laws which touch upon his daily practice, not the least of which are those relating to his financial relations with patients.

Just as superficial knowledge of medicine by laymen may jeopardize health, so fragmentary understanding of the law by doctors may prove disastrous in money matters. The profession of law is a most exacting one. Definite procedure must be followed. All essential facts must be considered. Proper form and phraseology are exceedingly important. Doctors cannot assume that a general understanding of the law is sufficient to warrant their taking action. If they do, the chances are they will provide a real task for some legal expert who may or may not be able to extricate them from their difficulties.

There are, however, common legal procedures with which every physician should familiarize himself. A few of these he can use with comparative safety providing he is sufficiently informed. Most of them require the assistance of legal counsel. An understanding of their requirements will, however, aid him in determining the desirability of their application. For example, if the physician is familiar with the court processes involved in an action for payment for his services, he is better able to decide the desirability of proceeding. He will take into consideration the effect of such litigation on the community and on his professional standing. He will know to what extent he must substantiate his claim, and the embarrassments which may ensue. These things he cannot appreciate fully without definite knowledge.

There are few legal documents which the doctor can prepare without the aid of legal counsel and maintain a feeling of safety. In the event printed legal forms are available,

*Read before the Potomac Valley Medical Society, Keyser, West Virginia, December 10, 1937.

and their execution is understood, there is, of course, no need for assistance.

Laws relating to medicine vary in their provisions in different states. General knowledge of what is required must therefore be supplemented by an understanding of the statutes of the state in which the doctor lives, as construed by the supreme court thereof. Such information should be obtained from a reliable source, preferably from legal counsel, so that the doctor may proceed with confidence and the certainty that no difficulties will arise to harass him later. Prevention of legal difficulties is infinitely better than cure, a fact to which you physicians can well testify.

LEGAL PROCEDURES

In considering legal procedures which the physician finds that he must use, it is essential that the practitioner understand the basis for their application. The law defines specifically the relationship which exists between the patient and the physician, and the liability for payment of the physician's bill.

There would be no material value of a detailed discussion in this brief few minutes allotted to me regarding the contractural relations of physician and patient. Many books dealing with medical jurisprudence are available to the practitioner who is inclined to give this subject study. An understanding of the basic elements of such relationship is, however, necessary, and will be of real help to the doctor in dealing with his patients.

Whether the doctor realizes it or not, all transactions between the patient and himself are based upon a contract. The general principles of the law of contracts apply in his relationships to patients as they do in any other contractural relationship. This may be made more clear by an analysis of different kinds of contracts.

Contracts for the payment for medical services may be of two kinds: express and implied. If the parties—that is, the physician and the patient—have declared, orally or in writing, terms of their agreement, it is an express contract. An implied contract arises from the ordinary relationship of physician and patient, obligating the patient to pay the fee that is ordinarily charged for similar services rendered by other physicians in the same community.

The wise doctor will not become a party to an express contract because too often it is a basis for malpractice suits and is a potential danger to his professional reputation. Fortunately most physicians steer clear of such agreements. It is sufficient protection to both patient and physician that the law defines their rights and privileges, without recourse to express contracts.

There are on record numerous instances where doctors have promised cures which failed to materialize, or agreed to provide certain treatment which they failed to give, with resultant litigation. Where evidence substantiates the fact that there was an express agreement the doctor has found himself in a difficult predicament.

This suggests that it is the better part of wisdom for the doctor in discussing costs for medical services with the patient to make it clear that he is not in a position to state definitely, in advance of the services to be given, the financial obligations which may be involved. He is obligated, however, to estimate the costs for such care. Generally he can do so with accuracy. I believe most physicians still hesitate to discuss fees with the patient prior to their being incurred. This is partly due to the difficulty of ascertaining in advance what the costs will be, but more frequently the practitioner is reluctant to mention his fee.

DETERMINATION OF VALUE

What constitutes a reasonable value for services rendered is dependent upon several factors: the standing of the physician, the customary charges in the community, the type of service rendered, and the financial condition of the patient. Courts have not been uniform in their opinions as to what constitutes reasonable charges, but where fees are in excess of those charged for similar services rendered by other physicians in the same community, such factors as time ele-

ment, location, nature of the ailment treated, loss of other practice, the doctor's average income, the amount charged for like services, and the financial standing of the patient are considered by the courts in arriving at fair values.

COURT DECISIONS

Although the courts have decided that a physician may legally bill his patients for his services under the title of "professional services", in some jurisdictions the courts have held that the doctor must upon demand particularize, showing in such detail as possible what his charges are for. This would suggest that itemization of accounts is desirable not only as a good business practice but as a prevention against legal difficulties.

Next we will consider the liability for the payment of the doctor's bill. Doctors often fail to determine who is liable for services which have been or are about to be rendered, even though circumstances suggest the advisability of precautionary measures. This failure to protect themselves against losses is largely due to their unfamiliarity with the fundamentals of the law involved.

Generally speaking, the head of the family, that is the husband and father, is liable for medical services rendered to himself, his wife, and to his minor children. A wife, even though she has a separate estate, usually is not liable for payment for medical services, even though rendered at her request to herself or her minor children, for the reason that medical services are termed necessities for which the husband alone is liable.

There are exceptions, of course, to this general rule, and West Virginia stands in the exception column; our State has gone a long way in a new statute relating to payment of bills for necessities which reads in part as follows: "All purchases hereafter made, or services contracted for, by either husband or wife in his or her own name, shall be presumed, in the absence of notice to the contrary, to be his or her private account and liability, but both are liable for the reasonable and necessary services of a physician rendered to the husband or wife while residing together as husband and wife, or for such services rendered to their minor child while residing in the family of its parents, * * *." This you see makes a wife separately liable for medical services rendered to her husband as well as to herself and children, in addition to the liability imposed upon the husband.

If the wife no longer lives with the husband, through no fault of his, some states, including West Virginia, permit the husband to serve legal notice that he will not be responsible for his wife's bills. Usually such notices are published in the classified columns of the advertising section of newspapers. If such notices come to the attention of the doctor he will do well to give them immediate consideration before rendering further service, determining to whom he must look for compensation.

SERVICES TO MINORS

As previously stated, parents or guardians are ordinarily responsible for services rendered minors. However, there are also exceptions to this rule. In some states in event a minor marries, neither parent nor guardian is responsible, but West Virginia follows the general rule as long as such minor cannot provide medical services for himself. Where husbands are not living with their wives much depends upon the circumstances to bind him for her bills. Careful investigation should be made by the practitioner where domestic difficulties have resulted in separation or divorce. Where extensive care of the separated or divorced wife is required, the doctor should seek legal advice to determine who is responsible for the cost of the services he is to render.

Minors who have left home, or who, not having left home, are gainfully employed, keeping their earnings, are in most instances liable for their own care. In most states it has been held that the father is responsible for services rendered to his adult children where such children remain a part of the

household and where services are requested by the father.

Ordinarily where a person other than a responsible member of the immediate family orders medical services he is not liable for payment. There are notable exceptions to this rule, courts having decided to the contrary on the basis of facts presented. When services are requested, and a promise to pay made by a third party, the doctor should secure a written agreement, which may be in the form of a letter, to pay a reasonable value for such service. A promise to pay after services have been rendered is, of course, not binding unless it is in writing, and for some consideration.

A physician called to attend a patient suffering injury resulting in unconsciousness can collect his fees, if reasonable, either from the patient or his estate, even though he ordinarily would not be called by that patient.

The doctor may be disturbed by the many exceptions to the general rules under the law, feeling that there is no certainty in any event that he is proceeding properly. This attitude is not justified by facts. By and large, general rules govern, and the practitioner can with reasonable safety depend upon them for guidance. Where there is any doubt in his mind, he will, of course, seek expert legal advice.

ENFORCING PAYMENT

The methods of enforcing payment may be very profitably considered. Infrequently the doctor finds himself in a position where he must enforce payment of an account by formal legal procedures. These should, of course, be adopted only as a last resort. There are times, however, when all other efforts to obtain a friendly settlement of a just account fail, and the doctor has no other choice than to institute legal action, if he wishes to be compensated for his services.

Before deciding upon this course the practitioner should give consideration to the ill will which may be created, and to the laws of the state relating to malpractice. In some states the period within which malpractice action may be instituted extends over a period of several years, indeed as it may in West Virginia, where an administrator or executor has two years from the time of a death resulting from a wrongful act in which to start legal action for damages. As a retaliatory measure and without justification, the patient himself may begin suit to recover damages when the doctor attempts to enforce payment of his bill and the law of our State gives him a year to do so. Having ascertained the time limitation within which malpractice actions may be started, and concluded to his own satisfaction that suit should be instituted to enforce payment, the doctor will proceed in the manner prescribed by law.

TWO COURTS AVAILABLE

Suit may be instituted in a court for the purpose of obtaining a judgment, or garnishment proceedings may be resorted to. In our state the suit to collect bills may be instituted in one of two courts; namely, the justice of the peace court or the circuit court. If the amount sued for is $300.00 or less a judgment may be rendered in a justice of the peace court, but to get into the circuit court the amount of the claim must be $50.00 or over. Between $50.00 and $300.00 the jurisdiction of these two courts overlap.

As to obtaining a judgment. A judgment is a final determination by the court of the rights of the parties involved in court action. For example, a patient is indebted to a physician for a certain amount; if the court or the jury determines that the patient is liable, the court enters judgment for the amount so determined.

In order to obtain a judgment it is necessary to begin legal action, whereupon, the dispute is heard before a court or a jury; in the justice court the justice hears the case unless a jury is demanded and the party demanding same advances costs for same; in the circuit court a jury hears the evidence and returns a verdict, unless by agreement of the parties to try the case before the judge. Following the trial a judgment is entered for the prevailing party by the court. In those

cases where there is no dispute but merely a refusal to pay, and no appearance is made by the person owing the debt, judgment is entered against him by default. Where an appearance is made and the debt disputed, of course, there must be a trial. The judgments in both courts are of equal value when made final; but within ten days after the justice of the peace renders his decision, an appeal from his court may be had to the circuit court, where the case is tried all over again. Appeals lie to the Supreme Court of the State from the circuit court's judgment.

RECORDING OF JUDGMENT

The entry of a judgment makes it a lien upon any real estate which the patient may have in the county in which the judgment is rendered, provided a transcript of the judgment is obtained from the court rendering same and then recorded in the judgment lien docket in the office of the clerk of the county court. This lien is an encumbrance for a period of 10 years on title to the real estate debtor after acquires as well as what he owns at the time of recordation of the judgment. Also, an execution may be had on the court's judgment and same levied on any personal property found belonging to the debtor; the life of a judgment may be thus prolonged indefinitely by having, at least, one execution issued each ten years thereon.

An exemption is the right to hold property free from seizure through the courts to pay debts. The exemption spoken of as "Homestead Exemption", allows a judgment debtor residing in West Virginia to hold his home exempt from action of his creditors, up to the value of $1,000.00, but this exemption must be determined before the action and recordation of the judgment against him, by him filing certain papers with the clerk of the county court.

The most common application of the exemption privilege allowed by law is called "scheduling". It is so designated from the schedule or itemized list of the debtor's personal property, showing values thereof. This is filed in the court to keep the owner's property from being taken to satisfy the judgment creditor's claim; you see the West Virginia law allows any husband or parent, residing in this State, or the widow or infant children of deceased parents, to set aside and hold personal property not exceeding $200.00 in value, free from execution of process; this includes money garnished in the hands of another. This law does not allow a wife, who is not also a parent, to claim such exemption. Furthermore, a mechanic or laborer may hold the working tools of his trade or occupation up to $50.00, exempt from execution.

Where a judgment is secured against a patient who has real estate in a county other than the county in which the judgment is secured, the filing of the transcript or copy of the judgment in such other county will make it a lien upon the patient's real estate in that county.

An "open" account on the doctor's books upon which the patient has made no payment for a period of years as set forth by the statutes of each state, is outlawed, and collection cannot be enforced. A judgment, on the other hand, will remain in full force and effect for a much longer period, depending upon the laws of the state. A judgment is the only safe way of protecting the value of an account against time. I presume all of you are aware of our law called the Statute of Limitation, which restricts the creditor's actions and suits; this law bars collection of a bill or "open" account after five years; likewise, it bars collection on a note or other written obligation after ten years, but in either case for the debtor to take advantage of this bar he must plead same in court. The law does not thereby cancel the debt, but merely makes it uncollectible at the wish of the debtor.

EXECUTION OF THE JUDGMENT

Having obtained a judgment, the next process in converting it into money is to have the judgment executed. This must be done in a manner prescribed by law, subject to the exemptions stated before, and the guidance of legal counsel is strongly suggested. Here

again the requirements of different states vary as to detail, and knowledge of them before proceeding is essential.

GARNISHMENTS

Where there is or is not property, but the patient debtor is gainfully employed, garnishment proceedings can be resorted to. This is a process by which a person to whom money is owed may, by obtaining a judgment, collect from the third party—that is, debtor's employer. For example, the patient owes the doctor, and payment having been refused, the doctor garnishees the employer to apply the amount owed upon his judgment. It is possible, too, to garnishee funds which the patient may have in the bank.

A garnishment is, of course, a legal procedure and cannot be applied except through the process of the courts. Further, garnishment proceedings vary in each state. As in the preceding action, that of obtaining judgment, legal counsel and advice may prove beneficial.

Another important and very frequent matter of collections involves the dead; claims may be filed against their estates. Where either the patient or the person liable for payment has died without having paid for services rendered, and has left property which is not exempt, a claim must be filed against the estate of the deceased person, if collection is expected. Making out such a claim is compartively simple, although the law is very exacting in this particular, such claim consists of an itemized statement of the bill for services together with an affidavit or sworn statement as to its accuracy. Forms for filing may be obtained from stationers who carry such printed legal forms. Chapter 44, Article 2, Section 5, of the West Virginia Code states emphatically how such claims are to be proved for allowance. This statute passed in 1931 changed the procedure considerably and must be adhered to strictly or the claim cannot be allowed for payment. The statement of account with verification is filed with the Commissioner of Accounts to whom the particular estate has been referred by the county court for attention, in lieu of the probate court. The time for filing such claims varies in different states, but in West Virginia it may be done up to the time the Commissioner of Accounts makes up his report of claims, which is generally from six to eight months after the reference. It is, however, safe to say that such claims should be filed as soon after the death of the person liable as possible. In West Virginia the Commissioner of Accounts runs a notice in a newspaper for three consecutive weeks notifying the public to file all claims against the decedent's estate with him by some certain date, which date he specifies therein.

In preparing a claim to be filed against an estate it is well for the physician to bear in mind that the law in West Virginia gives his bill a preference—to be exact, puts his bill in third place—in the order of claims for allowance and payment, for as much as $50.00, provided it was for medical services rendered during the last illness of the decedent. Therefore, the affidavit attached to the itemized bill should so state, when the services were rendered during the last illness to secure this advantage. The payment of administration expenses of an estate and the funeral bill, not exceeding $300.00, are the only claims superior to such physician bills, and when there is sufficient money in an estate to meet these charges the doctor need not wait the usual year for distribution of the assets of the estate in order to receive his preferred $50.00. The Commissioner of Accounts has authority to authorize the personal representative to pay these preferred claims in advance of all others. However, no claim barred by the Statute of Limitations can be allowed for payment against an estate.

AFFIDAVITS

Affidavits are often required of physicians. In addition to being necessary to prepare a claim for filing against a deceased person's estate, they are frequently required of a physician in litigation involving a patient's ac-

count. They are sworn statements made before a notary public or some other person qualified to administer oaths, supporting a claim by verifying to its authenticity and correctness. The law specifies the certain elements that must appear in each affidavit.

RECORDS MUST BE KEPT

Even a superficial knowledge of legal procedures reveals that complete records must be kept by the doctor in order to protect himself. So the physician may recover the value of his services, these records must show in detail the care given, itemizing the various charges. How such records are to be kept has hereinbefore been explained. Legal complications which may ensue in relation to any patient's account only emphasizes the necessity of correct and adequate financial records.

In addition to financial records it is equally important that the physician keep information relating to examination and treatment. When caring for injuries resulting from an accident, he must expect to be called upon some day as a medical witness in the litigation arising from the accident. His testimony will have to cover his entire course of treatment both as to manner, extent and nature.

To testify properly he cannot rely upon his memory, for such cases usually do not come to trial for a period of several years after the services have been rendered. He will at such trial be asked questions pertaining in great detail to the history, findings at the time of the first visit, subsequent treatment, phases of recovery, and the final outcome of the case. These should all be covered in his records so that he may be prepared not only to give a true picture of the physical condition of the patient, but also to show that his treatment was necessary and proper.

This is equally true of workmen's compensation cases, where the same sort of records are essential. Compensation insurance is rather a modern innovation in the practice of medicine. Inasmuch as the amount of litigation is constantly increasing and because each industrial accident now becomes a source of inquiry before one of the industrial commissions in different states, the demands upon the practitioner will increase constantly.

Therefore, it behooves the physician of today to keep clear and accurate records of both his accounts and services performed, for it will better enable him to collect for such services; it will better enable him to defend a malpractice suit by some former patient; and when called as a witness, whether for someone else or in his own behalf, he will be in a much better position to place the actual facts before the court and jury.

LEPROSY BACILLUS

Climate seems to be one of the determining factors in the spread and occurrence of leprosy, for it is most prevalent in hot, damp climates, Annette Fiske, R.N., declares in her article entitled "Leprosy" which appears in the March issue of *Hygeia.*

Although the bacillus that causes the disease is known, its mode of transmission has so far escaped the eyes of empiric science. It is known, however, that humid climates seem to favor its survival and transmission.

Furthermore, long, close personal contact is apparently involved. It has been found that 40 per cent of traced infections were caused by living in the same house with a leper and 30 per cent by sleeping with one; but the source cannot be traced in most cases.

Children and young adults are most susceptible. In fact, many think infection, in the majority of cases anyway, takes place in the early years, however late it may be manifest. Infection of adults is of rare occurrence. Certain it is that casual association involves far less danger than was once thought.

Segregation has been carried to extremes because of the lack of knowledge of the manner of spread of the disease. It is now known that early cases are not infectious, and if early diagnosis is made, a cure can be effected. Such patients do not need to be segregated; but if they go untreated, the disease develops into the virulent stage, when it is infectious.

In one type the nerves are affected; the contagion passes along them toward the spinal cord, although it never enters either the cord or the brain, and the victim may live out the ordinary length of life.

CLINICAL EVALUATION OF SULPHANILAMIDE IN THE TREATMENT OF ACUTE GONORRHEA IN THE MALE

By W. C. D. McCUSKEY, M. D., F. A. C. S. and JOHN F. McCUSKEY, M. D.
Wheeling, West Virginia

In April, 1937, Schwentker, Gelman and Long,[1] all of Baltimore, reported ten cases of meningococcic meningitis treated with sulphanilamide. These writers reported favorable results of the action of this drug on the course of the disease.

Because of the close bacteriologic relationship of the meningococcus and the gonococcus it was decided to begin a series of cases using sulphanilamide in the treatment of acute gonorrhea in the male. The following report embodies the clinical observation of the course of eighty cases of acute gonorrhea in the male, treated with sulphanilamide alone:

Most of the cases were seen for the first time within five days after the discharge began and presented no apparent pathology other than the acute anterior urethritis.

The dosage of the drug, arrived at by previous trial, was as follows: sulphanilamide three five grain tablets four times a day for two days (120 grains), three five grain tablets three times a day for four days (180 grains) and three five grain tablets two times a day for six days (180 grains). The patients were instructed to cease the use of the drug at the first notice of nausea, lassitude or dizziness. Thus these patients were receiving, in toto, four hundred and eighty grains of the drug over a period of twelve days, the minimum maintenance dose being forty-five grains daily for six days. Dees[2] and Colston used approximately this dosage in their series. As will be seen, however, deviation from this hypothetical course was necessary in about twenty per cent of the cases.

For practical purposes, the patients and results will be divided into two groups. In group A the majority are those patients who were able to take the drug as aforementioned without deviation for any reason. Group B represents those patients who because of untoward symptoms were forced either to discontinue the drug, or to vary the prescribed course.

Group B represents seventeen patients who complained of various untoward symptoms such as nausea, dizziness and lassitude. When this occurred the drug was discontinued for a period and resumed at a subsequent date in modified dosage. Fourteen of the patients in this group had a recurring or undiminished discharge on withdrawal of the drug. Five of these fourteen patients showed no improvement, clinically, and a persistent discharge upon resuming treatment with sulphanilamide. Seven patients in this group of fourteen were unable to tolerate the drug, regardless of rest periods, variation of dosage or time of ingestion.

It is seen, then, that twelve patients in group B received no apparent relief from the drug. The remaining five patients had either definite diminution or cessation of discharge.

The sixty-three patients in group A took the drug as prescribed. Seven patients showed no diminution of discharge during the entire twelve-day use of sulphanilamide. Forty-two patients had a complete cessation of discharge at an average of four days. The remaining nine patients showed definitely a diminished discharge to the "morning drop" at an average of six days following the use of the drug. The forty-two patients showed both glasses of the "two glass test" to be clear. The remainder of the sixty-three patients showed the first glass to be cloudy.

It is seen then that as far as the pyoureth-

ritis is concerned, fifty-six patients in both groups A and B were definitely benefited, although this is far from the final judgment. The percentage (70 per cent) in this series is not as high as that of Reuter[3] and Crean.[4] It is to be remember, however, that this report is concerned only with acute cases, whereas, other reports include both acute and chronic cases of gonorrheal urethritis. The writers feel that chronic gonorrheal urethritis and prostatitis present an entirely different problem.

REPORT COVERS FIFTY-SIX

From this point the report is concerned only with that group of fifty-six patients, as those other patients not benefited by sulphanilamide were placed on other forms of treatment.

Immediately after the twelve-day course of sulphanilamide, the patients were instructed to return once a week for examination; no treatment in the interim. They were advised that because the discharge had ceased or diminished they were not necessarily cured, and that the routine diet with concurring precautionary measures, were to be continued.

At each subsequent examination, prostatic massage, smear and two glass test were instituted. In the majority of cases smears from massage revealed, at one examination or another, a varying number of pus cells containing gram-negative diplococci usually extracellular. Some patients progressed asymptomatically without treatment for a period of three or four months, but showing intermittently, prostatic smears with gram-negative diplococci—all extracellular.

Noteworthy here is the observation that two of these patients, after progressing asymptomatically for three months and having negative smears, came for examination with profuse purulent urethral discharge. Questioning them definitely revealed that there was no history of sexual contact, but in both cases positive information was given concerning alcoholic excess and dietary indiscretion. Smears of the discharge revealed numerous pus cells with both intracellular and extracellular gram-negative diplococci. These patients were placed on the sulphanilamide treatment as previously described and within five days the discharge had stopped.

All of the cases in this report are under observation at the present time, the longest being six months and the shortest being three months. Although repeated negative smears over three to four months' time have been secured in several cases, none of the patients have been pronounced cured. They have all been cautioned accordingly. In the entire series of cases no complications such as epididymitis or prostatitis occurred.

The immediate disadvantage in the use of this drug is the toxic effect. Pertinent evidence of its toxicity is the fact that one issue of the *Journal*[5] *of the American Medical Association* recently devoted considerable space to reports of untoward effects.

Possibly when the drug has been further investigated and purified, the incidence of these reactions will decrease. Until that time, its administration should be carried out with the utmost caution and watchfulness.

Possibly the most glaring disadvantage in the use of sulphanilamide is its apparent curative effect. Patients and physicians both have failed to appreciate the danger to society in pronouncing patients cured when the discharge has ceased. It will be recalled that several cases in this series had no discharge and a negative two glass test, but prostatic smears showed gram-negative extracellular diplococci. Furthermore, some of the smears were only occasionally positive and over a period as long as three months.

DRUG ONLY ALLAYS DISEASE

The significance of these observations is that the drug only allays the disease, in some cases, and dietary indiscretions or sexual excitement will precipitate an acute exacerbation. It is evident then that these patients deserve a careful follow-up and long observation (probably as long as heretofore) before being pronounced cured.

It is well known that the presence of pus in the anterior and posterior urethra is a

most provoking factor in the production of urethral stricture. The longer the period of time that pus is present in the urethra, the higher the incidence of stricture becomes. In some fashion, at the present time unknown, sulphanilamide will allay or stop, in most cases, the formation of pus.

By the same fashion, the incidence of complications as prostatitis and epididymitis is decreased as none were observed in this series. As for other later complications, such as gonorrheal arthritis, it is too early to make any statement.

Sulphanilamide in five grain tablets is an easy and usually safe form of treatment. Most patients having this disease, in the acute state, are not content with the best type of management, which is no local treatment. Because of this fact, many physicians have been drawn into the institution of anterior irrigations prematurely. On the other hand, many physicians still practice immediate anterior irrigations as the accepted form of treatment.

With sulphanilamide clearing the urethra as it does, there remains no argument for the instilling of irritating drugs into the urethra in the acute phase, the effects of which, not infrequently, are worse than the disease.

SUMMARY

1. Report of eighty cases of uncomplicated acute anterior gonorrheal urethritis treated with sulphanilamide alone.

2. Dosage was fifteen grains four times daily for first two days; fifteen grains three times daily for next four days; fifteen grains two times daily for next six days.

3. Seventeen of the eighty patients complained of lassitude, nausea and or dizziness necessitating modified dosage.

4. Sixty-three of the eighty patients took the drug as prescribed without untoward symptoms.

5. Fifty-six of the eighty patients (roughly 70 per cent) were benefited, clinically, by the use of sulphanilamide in so far as the pyourethritis was stopped or diminished.

6. Some of the patients, asymptomatic and apparently cured, were found to have intermittent positive prostatic smears with extracellular gram-negative diplococci, as long as three months after treatment.

7. Two patients who had been asymptomatic for three months but had shown intermittent positive smears, appeared with acute exacerbations because of dietary and alcoholic excesses.

8. Disadvantages of the use of the drug are mainly: Toxicity, and false or apparent cure.

9. Advantages of the use of sulphanilamide are: Decrease in complications, decrease in pathology leading to stricture formation, ease of administration, obviation of anterior irrigations in the acute state, and possibly, but not certainly, a decrease in morbidity.

NOTE.—Within the near future, we shall publish the results of a series of cases in which sulphanilamide has been used in conjunction with local treatment. Thus far, this procedure appears to have attained the "highest efficiency" in the management of gonorrhea, and bids well to remove the disabling complications which have been all too common in every previous method of treatment of gonorrhea in the male.

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USE OF LIGHT

Experiments have proved that for close critical work the illumination must be more uniform and better dispersed than was formerly considered satisfactory, says Dr. Arthur J. Bedell in "Eyes and the Office Worker," in the March issue of *Hygeia*.

How this is to be accomplished depends on the type of work, the size of the room and the number of workers in it. In general, a rather high amount of indirect light should illuminate the room, and individual units can be placed on each desk or tabulating or typing machine.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

THE EARLY LESION

The nature of the early lesion is better understood now than ever before.

The time of life when the lesion is most likely to appear is more clearly defined.

The methods of diagnosing its presence have been developed and perfected.

The subsequent behavior of the early lesion and the ways of its healing or advancement are better known.

Most disabling and fatal tuberculosis originates in this lesion.

Knowledge of the methods of treatment and their proper selection and application is more accurate and reliable.

The far-reaching and vastly superior results of proper and timely treatment of the early lesion are firmly established.

The small tuberculous lesion first discovered in the lung is not necessarily an early one. The lesion that is not only small but also recently developed, may be caused by infection from without or by an extension from preexisting lesions, usually tiny or even microscopic, which, for a short or long time, have lain dormant and concealed. Previous examinations, therefore, may have revealed nothing abnormal except perhaps an apparently insignificant apical scar or a calcified hilar lymph node. The development of the early lesion, often called the early infiltration, may be rather abrupt, that is, within a week or a month, or it may be gradual with static periods of apparent quiescence. Rapidity of development, however, is one of its common characteristics. Pathologically it is a patch of tuberculous bronchopneumonia, occupying a section of the parenchyma usually not more than two or three cm. in diameter, sometimes at the apex but more often just below. The patient has no symptoms or only slight to moderate constitutional ones, chiefly a loss of a few pounds of weight and a little undue fatigue. Fever is not usually detected, and cough, expectoration and bloody sputum are rare at this stage. In some cases a patch of fine râles may be heard directly over the small lesion, but more often the physical examination reveals nothing abnormal in the chest. The roentgenogram shows, as a rule, the small area of soft infiltration in one lung.

Case-finding surveys among apparently healthy persons have shown that while no age is immune to tuberculosis, the peak of development is between adolescence and the late twenties. Fellows, in a study of annual examinations of a clerical force of about 10,000 women and 2,000 men, found that in a five-year period clinical pulmonary tuberculosis developed in 142 previously healthy persons, of whom 83 per cent were between the ages of 18 and 27.

The early lesion will be discovered in only a small minority of cases unless organized searches for it are made periodically. The patient, having few or no symptoms of illness, does not seek the physician. Rather, the physician, in his capacity as a farseeing health officer, must seek the patient. Tuberculin testing and x-ray examination of the chest, wisely planned and applied, are indispensable parts of the diagnostic method. If the diagnosis is adequate, it will include not only a recording of the lesion but also an interpretation of its potential significance and the need for treatment. The small size of the infiltration, the lack of symptoms, and the failure to find tubercle bacilli in the sputum often cloak the situation with a grossly undeserved aspect of innocence.

INFILTRATION

The early infiltration may be absorbed almost completely, leaving behind a small scar, or it may spread, become caseated and liquified at its center and ulcerate into a bronchus, whence other parts of the lung may become contaminated, the beginning of advanced tuberculosis. Absorption, if it occurs, is slow. The tendency to central caseation is a predominant one, varying in intensity and rapidity. After ulceration and excavation of the lesion occurs, the rate and extent of formation of secondary lesions vary within wide limits. Acute bilateral tuberculous bronchopneumonia may be set up within a few weeks. More often the extensions occur at irregular intervals, and gradually the case drifts into the confirmed chronic state. The eventual contamination and infection of the larynx, intestine and other related structures by the bacilliferous discharges from the pulmonary cavities is frequent.

The frequency of spontaneous healing of untreated early lesions is a matter for further investigation. The most optimistic observers estimate that as high as 40 per cent of the lesion may heal completely. I am reasonably certain, after ten years of special attention to the point, that the majority

of early infiltrations developing in young people progress and undergo excavation if they are not promptly and properly treated.

Sufficient information has been accumulated by the pathologists and from a study of pathogenesis in the living to warrant the conclusion that most disabling and fatal tuberculosis originates from the once innocent-appearing early infiltration. An appreciation of this linkage has been lacking until recent years yet is one of the most important and basic principles in treatment and control. The conception, to be complete, includes the element of time relationships, because, as stated, the extension from the early lesion may be rapid or slow, limited or wide, continuous or discontinuous. Connecting this conception with the evidence that most early pulmonary infiltrations put in their appearance between adolescence and the late twenties, it follows that advanced tuberculosis is unlikely to develop in a person past 30 unless he has acquired lesion.

The tendency is for the early lesion to caseate rapidly. Treatment should aim to prevent, retard or arrest the process. The sooner and the more strictly the rest cure in a sanatorium can be instituted, the more effective it is likely to be. In many cases the treatment of the first few weeks is the most important of all. The younger the person, the more labile the lesion is likely to be and the greater the need for prolonged rest. Consideration of the potential hazard of the lesion, as already discussed, and of the desirability of permanent recovery with the least sacrifice of function often takes precedence and dictates continuation of rest in bed well beyond the time when symptoms have subsided and the hematologic picture is normal. From six to twelve months of sanatorium care is advantageous. Most patients can then gradually resume activities, but a definite limitation of these for another year is usually necessary. Pneumothorax or temporary paralysis of the diaphragm may give the necessary lift to the patient who, on rest treatment alone, does not show definite and steady progress.

INDIVIDUAL CASES STUDIED

I can speak of an experience with more than 100 cases in which the lesions were actually early, since previous roentgenograms showed no disease; they occurred in young people, and observation was possible from one to ten years afterward. This is supplemented by consideration of many hundreds of other cases of rather recent origin in which the duration and course of the disease was reasonably clear though not always verifiable. The experience is not adequate for statistical presentation and I give only a considered judgment, based more on an intensive study of the individual cases than on groups. Thus far, most of the untreated cases have progressed into advanced disease. Patients treated promptly and with bed rest at the start have recovered without progression of the lesion in about 90 per cent of the instances. In most of the others, advancement or relapse, if any, has been promptly detected and usually controlled by artificial pneumothorax. Considering permanence of recovery, preservation of pulmonary function and working ability after treatment, the experience has been much superior to any other plan attempted.

The Lasting Cure of Early Pulmonary Tuberculosis, J. Burns Amberson, Jr., M.D., Jour. of the A.M.A., Dec. 11, 1937.

ESKIMO AND FAT

The Eskimo's ability to eat, digest and assimilate large quantities of pure fat evolved hand in hand with his physical adaptation and the differentiation of his organs of digestion and assimilation, Clark M. Garber discloses in his article "Eating with the Eskimos" which appears in the March issue of *Hygeia.*

Thus the Eskimo consumes food which provides heat for his body just as nature intended it to produce warmth for the animals producing it. If the Eskimo's diet of blubber and meat is taken away from him and is supplanted with the white man's diet of starches, sugars, vegetables and so forth, his constitutional resistance to disease disappears.

A year or two of the white man's diet is sufficient to permit the development of dental decay, tuberculosis and other diseases with which the Eskimo people have had little experience. To remove an Eskimo from his native diet and habitat for more than three years is to sign his death warrant.

Unlike the white man's diet, the Eskimo's is not make up of food items gathered from the four corners of the world. His diet is distinctly the product of his own environment, and it gives him the maximum protection against cold.

The Eskimos' diet is more than 90 per cent meat of one kind or another, and they are heavy eaters of lean meats as well as of large amounts of blubber. Chemical analysis has disclosed the fact that seal oil, or blubber, contains vitamins identical with those found in cod liver oil.

President's Page

The old doctors should read the new books; the young doctors the old books. Such is the sense of a statement by some noted medical savant, probably Osler.

Under the present labile condition of medical knowledge it behooves doctors old and young to make some attempt at keeping abreast of current medical literature. With the maze of new facts growing out of research in medical centers over the world, the often hasty attempt to evaluate and correlate new findings, and worst of all the attempt of those who would profit commercially to foist upon the profession poorly justified or totally unwarranted therapeutic applications, the situation is often so bewildering as to inculcate in the doctor on the firing line of practice an inferiority complex. It is a pleasant escape from this unhappy state of mind to read some of the old books. This helps one to regain his poise and shows him that if human knowledge is shifting sand human nature remains much the same. In the old books one will at least see no mention of vitamins and sex hormones!

Delightfully delineated case histories are to be found in Weir Mitchell's novels, thrilling and entertaining, although written in a day when a story could be enjoyable without so much sex embellishment as is the fashion of today. If you labor under the delusion that quacks and irregular practitioners are a flower of the twentieth century read in Oliver Wendell Holmes' Medical Essays "Homeopathy and its Kindred Delusions." What a subject for the radio announcer would have been Perkins and his metallic Tractors, a fad which originated in New England but crossed the Atlantic to Europe! Osler's volumes, "Aequanamitas" and "An Alabama Student" are eminently appropriate for the bedside table. If you would rediscover that greatest of all therapeutic agents, *vis medicatrix naturae*, read Ambroise Pare's "Journeys in Diverse Places." All of us would be more helpful to our patients if occasionally we read the charming little brochure by the late Francis Peabody, "The Care of the Patient."

President.

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MEDICAL FEES

The subject of medical and surgical fees charged by physicians is now open for general discussion. It is a ticklish subject to bring up, because it strikes at the pocketbook of the medical profession. But because it is ticklish, we feel that it is discussed all too little in open forum. We wish to discuss the subject quite frankly here, for the reason that medical and surgical fees are beginning to play a large part in the supposed trend toward socialized medicine.

At the present writing there is much to do about free immunizations. The medical profession rightly holds that immunization belongs to the family doctor. The Health Department holds that the health officers should step in when and if the private physicians fail in this responsibility.

If this is our responsibility, how are we going to meet it? How are we going to get parents to bring their children to our offices for immunizations? We can't do it with the large moderate income group if we charge from two to five dollars per "shot." So far as public welfare is concerned, immunization is a mass problem; not an individual one. If our private physicians expect or hope for any considerable amount of immunization work, we must adjust our fees to meet the demand for mass production.

Three dollars may be little enough for a typhoid shot or smallpox vaccination, but that fee is worth nothing if it destroys the demand for private immunization service. Suppose the average man of moderate income has four children whom he wants immunized for smallpox, typhoid and diphtheria. His total cost at the above mentioned fee would be seventy-two dollars. Will he pay it? Not at all. Instead, he will wait until his youngsters enter the public schools when the state will provide such immunizations without cost, if forced to do so.

Many doctors still charge fifteen dollars for salvarsan injections in the treatment of syphilis. This fee seems to be largely based on the idea that it is a penalty exacted from the patient for his wickedness in contracting a venereal disease. Whatever the reason, such a charge is the surest way of driving these patients away from their regular doctors and into the hands of free clinics. Even if only a few doctors charge such fees, the entire profession suffers. Laymen gossip about excessive medical and surgical fees; they rarely discuss reasonable ones.

The family wage earner with an income of $100 per month or less is the man the medical profession must look out for. The physician or surgeon who does business on a "one price for all" basis and makes no concession to the poor devil who can hardly afford shoes for his children is helping to sow the seeds of socialized medicine. If we are to preserve the private practice of medicine in this country, we must place our fees within the reasonable reach of the independent poor.

WHITE SULPHUR PROGRAM

The scientific program for the seventy-first annual meeting of the Association scheduled for White Sulphur Springs next July 11-13, 1938, has been virtually completed by the Committee on Scientific Work, headed by Dr. Eugene B. Wright, Clarksburg, chairman. A few minor details are still to be worked out, but the Committee hopes to have everything in readiness for JOURNAL publication at an early date.

Among the distinguished out-of-state

guests who will appear on the White Sulphur Springs program will be Dr. Horace M. Korns, Professor of Medicine of the Iowa University School of Medicine; Dr. Waltman Walters of Mayo Clinic, Rochester, Minnesota; Dr. Lewis Henry Clerf, Professor of Bronchoscopy, Jefferson Medical College, Philadelphia; Dr. J. C. Gittings, Professor of Pediatrics at the University of Pennsylvania, Philadelphia; Dr. Gordon McKim, Professor of Urological Surgery, University of Cincinnati; Dr. Henry S. Ruth, Professor of Anesthesia, Hahnemann Medical College, Philadelphia; Dr. Nicholas J. Eastman, Professor of Obstetrics, Johns Hopkins University School of Medicine, Baltimore, and Dr. Edward L. Compere, Professor of Orthopedic Surgery, Chicago University School of Medicine.

The sectional meetings will be held on Monday, July 11, with the Sections on Pediatrics and Surgery scheduled for the morning hours and the Sections on Eye, Ear, Nose and Throat and Internal Medicine set for the afternoon. The general scientific sessions will be held on Tuesday and Wednesday with the President's Address on Tuesday evening.

Special societies meeting conjointly with the Association will include the Society of Industrial Physicians and Surgeons on Sunday, July 10, the West Virginia Heart Association on Monday morning, July 11, and the West Virginia Obstetrical and Gynecological Society on Thursday morning, July 14. An effort is being made to secure the standard feature motion picture film, "The Birth of a Baby," for Sunday evening before the convention convenes.

THE FIGHT AGAINST SYPHILIS

In the very beginning, it was apparent that the Antisyphilis Campaign would be long and difficult, and further experience serves only to confirm this belief. The public has taken kindly to our educational efforts and increasingly asks for more. So far, this receptive public comprises the forward looking, informed, intelligent group—the group in which least can be accomplished because least needs be accomplished. There is still the larger part of the public—that part that needs our message most—that is as yet beyond the sound of our voices. It is probable that years of continuous effort will be needed to plant even a working ferment among them.

Regretful and embarrassing as it may be, there is nothing to be gained by denying the fact that too large a percentage of the medical profession is not informed of the modern methods of control, diagnosis, and treatment of syphilis. Syphilis is a factor to be considered in the practice of every physician and, in one guise or another, daily enters the office of every practitioner. The doctor who says he never sees any syphilis is making a horrifying admission of incomplete examinations. The county medical societies through their syphilis control committees can do much to improve this backwardness among some of our members.

The Antisyphilis Campaign is being conducted with two ends in view. The first of these is the approach from the public health standpoint which regards syphilis as an infectious and contagious disease and seeks by controlling the contagious patient to cut down the spread of the disease. The second approach concerns the individual and seeks not only to make him rapidly non-infectious, but thereafter to give him sufficient treatment as to cure, or at least to spare him from any disabling results of his infection. To achieve this latter end is going to necessitate prolonged education of public and profession. Since the infectiousness of syphilis is so readily controlled it would seem more practical at the present time to devote our major efforts to doing this, which calls for competent dark field examination of all genital sores, Wassermann testing of all pregnant women early in pregnancy and the prompt institution of intravenous arsenical therapy in positive cases.

SURGICAL RESTRICTIONS

It is encouraging to note a growing tendency on the part of medical societies, hospital staffs and other medical and surgical groups to establish minimum standards for those doctors who desire to do surgery. In most of our larger and more progressive West Virginia hospitals, limitations and restrictions have existed for a number of years. In other institutions, however, there are no restrictions of any kind dealing with the surgical competency of those doctors who desire operating room privileges. As a result, doctors are occasionally allowed to attempt operative procedures for which they are wholly unqualified. When such operative procedures are unsuccessful, discredit is reflected upon the hospital and the entire profession.

Our state association is probably the first in this country to recognize this situation and to take action toward raising the surgical standards of West Virginia. This was done at our Clarksburg meeting last May when the House of Delegates authorized the preparation of a selected list of men qualified to do rehabilitation surgery for the Department of Public Assistance. While this action has not been especially popular with our entire profession, it has nevertheless attracted nationwide attention and commendation. Our plan may have a tendency to work an occasional hardship upon some of our younger men, but it is generally conceded that the plan will work to the advantage of all after it has been in existence a few years.

In keeping with this trend toward surgical proficiency, the staff of the Saint Francis Hospital in Charleston has recently adopted a resolution placing definite restrictions on operating room privileges. The resolution adopted by the Saint Francis staff is probably no different and no better than similar plans in many of our other hospitals, but we publish it here because it is new and because it is in keeping with a wholesome tendency which merits encouragement. The resolution follows:

"*Resolved,* That in the future any new reputable licensed physician who requests operating room privileges in this hospital will be informed that he must meet the minimum requirements of the hospital hereinafter stated and that his first six operative procedures must be done under the observation of one or more members of the active surgical staff. At the conclusion of the period of observation the Operating Room Privilege Committee will recommend that operating room privileges be withheld, deferred, or extended to the applicant.

If the question concerning the surgical eligibility of a physician now holding operating room privileges arises, it shall be resolved in the manner set forth in paragraph one of this resolution.

Minimum requirements for applicants requesting operating room privileges shall be:

1. Applicant shall be a physician licensed to practice medicine and surgery by the Public Health Council of the State of West Virginia.

2. Applicant shall be a member of organized medicine, as evidenced by his membership in the county medical society and State Medical Association.

3. The applicant shall have completed a recognized residency in his prescribed field of practice.

4. Requirements two and three may be waived by the unanimous vote of the committee and the applicant accorded full surgical privileges, providing that the other conditions and requirements of this resolution are met.

HOW ABOUT YOUR DUES?

The Association's delinquent list of unpaid members becomes effective on April first. This is the last issue of the JOURNAL that will be sent to unpaid members; hence this is our last opportunity to bring this matter officially to the attention of tardy members. To those of you who have not yet taken care of your 1938 dues, we urge you to lighten the burden of your county secretary by sending them in to him at once.

Each year when the delinquent list goes into effect, the list is considerably smaller than the year before. We feel that this is comforting assurance that our membership is coming more and more to appreciate the work which the State Association is doing.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

CHILD HEALTH CONFERENCES

The State Health Department is again cooperating with the local health departments, parent-teacher's associations, women's clubs and other interested groups in conducting Preschool Child Health Conferences. They will be held during the months of May and June, 1938. This is an educational activity to teach parents the value of periodic health examinations. Parents are urged to attend these conferences with their children. These conferences are also held in order to send to the entering grade of school a class of children as free as possible from remedial defects.

It is hoped that local physicians will participate in the conferences and make these examinations. It is not the policy of the health department to have local health officers make these examinations but for them to act in an administrative capacity only. Parents who can afford it are urged to go to their family physician for these examinations. This cannot be accomplished one hundred per cent because it is impossible to differentiate at the conference between those who are able to pay and those who are unable to pay.

The State Health Department is providing funds for the payment of fees to local physicians and dentists who participate in these conferences. No person other than a licensed doctor or dentist is eligible for remuneration from the State Health Department. The following schedule of fees are allowed: General practitioners who hold the M.D. degree, or Doctors of Dental Surgery, will be paid $10.00 for a full day's service (a full day's service is from 9:30 A. M. until 4:00 P. M. with an hour and a half for lunch.) Physicians and dentists assisting for one-half day will receive $5.00. Where a pediatrician, who limits his practice entirely to pediatrics, assists for a full day he will be allowed $20.00, and $10.00 for one-half day's work. Physicians should be sure that the organization requesting their services has entered into an agreement with the State Health Department for the payment of the fees. We cannot be responsible for any fees unless an agreement has been entered into between the organization conducting the preschool conferences and the State Health Department.

Of course funds for such services are limited. Definite amounts will be allocated to counties and these amounts will have to be adhered to, as the budget for this purpose cannot be exceeded. As these funds are for rural projects, they are to be applied to towns of less than 10,000 population.

The State Heatlh Department feels that these conferences are of service to the local physician, not so much because of the small fees that are paid for his services but because they familiarize the public with the local physician. They impress upon the public the importance of periodic examinations. Remedial defects found by these examinations are referred to their family physician for correction.

More than anything else we all want the child to enter school in good physical condition and to be better prepared to hold his own with other children. This can be accomplished by:

1. The development of healthy habits such as adequate sleep, rest, exercise, a well-balanced diet, personal cleanliness and health, and mental attitudes.

2. The removal of existing defects such as bad teeth, infected tonsils, adenoids, poor vision, impaired hearing, hereditary tendencies, and others.

3. The prevention of preventable diseases by immunizations.

4. The early recognition of the beginning of defects and of diseases through periodic health examinations.

CHILD HEALTH DAY

The month of May will again be devoted to a consideration of child and maternal health needs of the state. Starting on May first with the nation-wide celebration of Child Health Day, schools, civic and religious organizations and others will feature programs outlining the needs of the various communities in child health protection and promotion as well as the preservation of the motherhood of America.

It is urged that doctors, wherever possible, assist in these programs and so aid in directing the public to better and more far reaching plans, looking to the betterment of the race.

Chipman has said that "if it is important to be in the world at all and most of us act as if it were, the manner and safety of our entrance is surely a first consideration."

COUNTY HEALTH MANUAL

Doctor Arthur E. McClue, state health commissioner, has just announced the issuance of the first "West Virginia Manual of Administration and Procedures in County Health Work."

The manual is expected to serve as a general guide in the administration of public health in the state, giving as it does in outline form, the organization of public health, its duties and relationship to other official and non-official organizations. Those methods of procedure and policies of administration which have been found by experience and observation to be sound and practical, have been assembled for the use of the health officer, who is seeking to establish a sound public health program.

In addition the manual lists all the official and non-official organizations and institutes and gives the method of admission to each institution.

The booklet is loose-leaf so that it can be kept up-to-date. It has been sent to all health departments and to the many official and non-official agencies in the state that cooperate with the State Health Department.

KINDS OF FATIGUE

Fatigue is a common name applied to different conditions of body and mind, for fatigue of muscle and fatigue of mind are not the same, asserts Joseph Jastrow, Ph.D., in the second part of his article entitled "The Story of Human Energies" appearing in the March issue of *Hygeia.*

A coal miner or ditch digger at the end of his day and a stock manipulator or a creative writer at the end of his day are not experiencing the same kind of fatigue. Yet these persons are equally "all in" and need sleep for recuperation.

Tables of energy-expenditure, based on calories per hour, show that a man weighing 154 pounds uses 100 calories when sitting at rest; this falls to 77 when he is lying down and even to 65 when he is asleep, just enough to keep the body going. Reading takes the rate up only to 105, and such routine occupations as washing dishes, ironing or typewriting raise it to about 145. Slow walking requires 200 calories and running or severe exercise, 300.

More and more, within the low energy class of writing, painting, engraving, watchmaking and "white-collared" office jobs, the mind work—of which the calories give no indication—determines the strain of the occupation. The dominance of the mental factor has been referred to as "the defeat of the test tube."

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on Thursday evening, March 10, with a good attendance. Dr. Walter C. Swann, president, presided.

The guest speaker of the evening was Dr. William B. Porter, Professor of Medicine at the Medical College of Virginia. His subject was "The Heart and Physiologic Adjustments in Chronic Anemia," which was interestingly presented and liberally discussed. Lunch was served during the social hour following the scientific program.

BOYD F. BROWN, *Secretary.*

CENTRAL WEST VIRGINIA

The regular quarterly meeting of the Central West Virginia Medical Society was held at Sutton on the evening of March 19 with an excellent attendance. Dr. Everett Walker, Adrian, president, presided.

The scientific program was presented by Dr. Theresa O. Snaith, Weston; Dr. John E. Cannaday, Charleston, and Dr. H. A. Swart, Charleston. Dr. Snaith gave a very interesting and instructive talk on "The Care and Feeding of Infants." Dr. Cannaday read a very interesting paper dealing with diagnosis and treatment of malignancy of the large bowel. Lantern slides and case discussions were presented. Dr. Swart presented a paper dealing with some of the new methods of treatment of fractures; presenting case histories, and interesting moving pictures of some of the cases.

Visitors at the Sutton meeting included Dr. A. F. Lawson of Weston and Dr. J. E. Offner, Superintendent of the Weston State Hospital. Dr. William Earl McIlvain, district health officer of Sutton, was elected to membership in the society.

Delegates to the state meeting at White Sulphur Springs next July will be Dr. E. H. Hunter, Webster Springs, and Dr. A. B. Bowyer, Buckhannon. Dr. William Nelson, Richwood, will serve as alternate.

A representative committee of the society was authorized to be appointed and to investigate and draft a fee schedule for the Central West Virginia Medical Society.

The next meeting of the society will be held in Summersville with Dr. Eugene Brown, Dr. F. H. Brown and Dr. Henrietta Marquis of Richwood acting as the committee on arrangements.

A. B. BOWYER, *Secretary.*

EASTERN PANHANDLE

The Eastern Panhandle Medical Society held its regular monthly meeting at the Jefferson Hotel, Charles Town, at 12:30 o'clock p. m. on Wednesday, March 9, with Dr. A. W. Armentrout, president, presiding. The guest speaker of the day was Dr. Louis H. Douglas of the Department of Obstetrics of the University of Maryland, Baltimore. His subject was "Maternal Mortality." Dr. Thomas W. Nale, Director of the Bureau of Infant and Maternal Welfare of the State Health Department, was also a guest of the society and presented an interesting discussion of maternal deaths in Berkeley and other counties.

At the conclusion of the scientific program a short business session was held during which Dr. E. H. Bitner, Dr. J. K. Guthrie and Dr. C. G. Power were named as a legislative committee to act for the society. Dr. W. A. Wallace, Dr. R. B. Talbott and Dr. Roger E. Clapham were named to represent the society with local welfare workers.

This was a very successful meeting with 22 members and three guests present to hear Dr. Douglas' comprehensive lecture.

MARVIN H. PORTERFIELD, *Secretary.*

GREENBRIER VALLEY

The regular meeting of the Greenbrier Valley Medical Society was held at the General Lewis Hotel, in Lewisburg, Wednesday, February 16. The meeting was presided over by Dr. H. D. Gunning, president. Seventeen members were present at the dinner and meeting. Papers were given by Dr. J. Bankhead Banks of Charleston, on "Proctology; The Diagnosis and Treatment of Certain Rectal Condition of Sacral Anesthesia," and by Dr. P. A. Tuckwiller on "Methods of Diagnosis and Treatment of Allergy." Both papers were discussed liberally by the whole society.

Dr. J. H. Crouch of Beckley, was presented as the new district director of the Public Health Department. During a discussion of the immunization program a committee was appointed consisting of Dr. W. E. Myles, Dr. C. W. Lemon, Dr. J. W. Compton, Dr. J. R. Richardson, and Dr. N. R. Price which was to assist and work out with the director an amiable working plan in regard to this whole problem. Some suggestions along this line were presented in a letter from the Kanawha County Medical Society read by Dr. H. L. Goodman.

A resolution was presented and passed that the society go on record favoring the Postgraduate Conference and that attendance would be stimulated by eliminating the five dollar fee.

R. E. BAER, *Secretary.*

KANAWHA COUNTY

Dr. Jesse G. M. Bullowa, Clinical Professor of Medicine of New York University, will be the guest speaker at the meeting of the Kanawha Medical Society to be held at the Daniel Boone Hotel, April 5. His subject will be "Management of the Pneumonias." Dr. Bullowa is Director of the Littauer Pneumonia Research Fund and will bring the results of over ten years clinical research experience. Members of neighboring county medical societies have been invited to attend.

A symposium on syphilis control featured the March 8 meeting of the society, presided over by Dr. B. H. Swint, president. Papers were presented by Dr. G. G. Irwin and Dr. W. S. Robertson. Those participating in the discussion included Dr. R. O. Halloran, Dr. A. A. Shawkey and Dr. Ray Kessel.

A. SPATES BRADY, JR., *Secretary.*

LEWIS COUNTY

Dr. H. H. Haynes of Clarksburg was the guest speaker at the meeting of the Lewis County Medical Society held at Weston, March 8. His subject was "Carcinoma of the Rectum," and discussion was opened by Dr. A. F. Lawson and Dr. E. A. Trinkle of Weston. There was a good attendance.

Due to ill health, Dr. M. D. Cure declined the presidency of the society and Dr. G. C. Corder of Jane Lew was elected president, with Dr. George Snyder as vice president.

R. O. PLETCHER, *Secretary.*

LOGAN COUNTY

The Logan County Medical Society held its regular meeting at the Aracoma Hotel on March 9, 1938. Dr. R. L. Anderson, Charleston, gave a very complete review and instructive talk on "Chronic Arthritis" illustrated by lantern slides.

Dr. H. E. Baldock, Charleston, gave a talk on "Meningococcus Meningitis", outlining the recent work on therapy of this disease and presenting the treatment and results of sixteen cases from his practice.

The Logan County Medical Society went on record as favoring the postgraduate refresher courses as outlined by the committee of the State Association and asking that Logan be chosen as one of the points in the state where the courses be conducted.

J. L. PATTERSON, *Secretary*.

MARION COUNTY

Dr. William C. D. McCuskey, Wheeling, was the guest speaker at the meeting of the Marion County Medical Society, which was held at the Fairmont Hotel, January 25. Dr. McCuskey's subject was "Management of Prostatic Obstruction."

Dr. Earnest P. McCullagh of the Cleveland Clinic, Cleveland, Ohio, was the essayist at the meeting of the society on February 22. His subject was "Common Endocrine Problems."

A. H. STEVENS, *Secretary*.

McDOWELL COUNTY

The regular meeting of the McDowell County Medical Society was held March 9, at 8:00 p. m. at the Appalachian Building in Welch, with Dr. C. B. Chapman, president, presiding.

Dr. H. T. Schiefelbein's interesting and instructive paper on "Acute Otitis Media" was enjoyed by all present, and extensive discussion was entered by various members. He had some interesting slides which were made by his associates and were well done.

Dr. Anderson's resolutions regarding the death of Dr. S. J. Kell, Dr. J. L. Sameth and Dr. W. P. Beane were accepted, and the secretary was instructed to have them spread on the minutes of the meeting and a copy sent to the relatives, and to the JOURNAL.

A letter from Mr. Joe Savage, executive secretary of the State Medical Association, regarding the lectures and conferences to be held in pediatrics and obstetrics, was read and discussed, and it was decided that the secretary be instructed to write and accept this offer, and that a committee from this society be appointed to assist in arranging the meetings here. Dr. H. A. Bracey and Dr. Arnold Wilson were appointed on the committee.

F. E. LAPRADE, *Secretary*.

MERCER COUNTY

The Mercer County Medical Society held its regular meeting February 25 in the Directors Room of the Municipal Building, Bluefield. Dr. W. M. Harloe, of Matoaka, and Dr. Azby A. Milburn, of McComas, were elected to membership.

Dr. C. M. Scott reported further on the case with a cyst of the thoracic duct which is now doing satisfactorily following a second operation for the obliteration of the cyst.

Due to unavoidable circumstances, no further program was presented and the meeting was adjourned at 9:00 o'clock.

O. G. KING, *Secretary*.

MONONGALIA COUNTY

Dr. James L. Wade of Parkersburg was the guest speaker at the meeting of the Monongalia County Medical Society, March 1, which followed a dinner served at the Hotel Morgan, Morgantown, at 6:00 o'clock. He presented a timely and interesting paper on the subject, "Neurological Problems and the General Practitioner," which evoked a liberal discussion.

G. R. MAXWELL, *Secretary*.

OHIO COUNTY

Dr. T. E. Jones of the Cleveland Clinic, Cleveland, Ohio, was the guest essayist at the meeting of the Ohio County Medical Society, February 25, held at the Ohio Valley General Hospital, Wheeling. Dr. Jones' subject was "Diagnosis and Treatment of the More Common Lesions of the Rectum." Discussion was opened by Dr. Russell B. Bailey and Dr. C. I. Holley.

Dr. Dean Lewis, Professor of Surgery at Johns Hopkins University School of Medicine, Baltimore, addressed the March 11 meeting of the society on the subject, "Infections and Their Treatment." This was a most practical talk and discussion was opened by Dr. Earl Phillips, Dr. R. B. Bailey and Dr. R. W. Lukens.

Dr. Thomas McCollough, Associate Professor of Otology, Laryngology and Rhinology, University of Pittsburgh School of Medicine, was the guest speaker at the meeting of the society at the Ohio Valley General Hospital, March 25. His subject was "Laryngeal Obstruction and Treatment." Discussion was led by Dr. Ivan Fawcett, Dr. E. L. Jones and Dr. M. F. C. Zubac, all of Wheeling.

W. C. D. MCCUSKEY, *Secretary*.

PRESTON COUNTY

The regular meeting and election of officers of the Preston County Medical Society was held at Hopemont on the evening of March 7. Dr. A. V. Cadden, Hopemont, was elected president; Dr. D. J. Rudasill, Kingwood, vice president, and Dr. C. Y. Moser, Kingwood, secretary-treasurer.

Delegates to the state meeting at White Sulphur Springs next July will be Dr. R. C. Edson, Hopemont, and Dr. E. E. Watson, Albright. Alternates are Dr. B. S. Rankin, Kingwood and Dr. H. C. Miller, Eglon. The same committees were reelected for the coming year.

Dr. A. L. Starkey and Dr. Fred Crenshaw, both of Hopemont, were elected to membership in the society at this meeting.

C. Y. MOSER, *Secretary*.

RALEIGH COUNTY

Dr. Claude B. Smith, Charleston, was the guest speaker at the meeting of the Raleigh County Medical Society, February 17, which was held at the Pleasant Inn, Beckley. He presented a very interesting paper on "Low Back Pain," which was illustrated with lantern slides and x-ray films. The new projectoscope recently purchased by the society was used to show Dr. Smith's slides.

Dr. A. P. Hudgins, Charleston, was a vistior at the meeting.

The regular monthly meeting of the Raleigh County Medical Society was held at Leslie's Diner, Beckley, on the evening of March 17 with a good attendance. Dr. D. C. Ashton, president, presided.

Dr. Ray M. Bobbitt, Huntington, was the guest speaker and talked on the subject, "Urinary Tract Infections." A liberal discussion followed.

The society voted unanimously to sponsor the postgraduate refresher courses in obstetrics and pediatrics during the coming summer, offered by the State Association. A special committee was authorized to handle all necessary arrangements.

A motion endorsing the proposed formation of a Woman's Auxiliary to the Raleigh County Medical Society was given the entire support of the members in attendance.

L. M. HALLORAN, *Secretary*.

On the enrichment of health depends our economic and social well being.—*Hygeia*.

General News

VIRGINIA ALUMNI

Alumni of the Medical College of Virginia will meet in Huntington on April 14, 1938. There will be golf at the Guyan Country Club in the afternoon. Dinner will be served at 6:00 o'clock p. m.

Dr. C. C. Coleman, Dr. Rashier Miller and Mr. J. R. McCauley, all from the University, will be on the program. The Cabell County Medical Society meeting will be held at 8:30 o'clock following the alumni meeting.

Reservations for the dinner may be obtained through Dr. A. P. Hudgins, Professional Building, Charleston, West Virginia.

COMING MEETINGS

The twenty-second annual session of the American College of Physicians will be held in New York City on April 4-8, 1938, with headquarters at the Waldorf Astoria Hotel. Complete information may be secured from Mr. E. R. Loveland, executive secretary, 4200 Pine Street, Philadelphia.

The annual scientific assembly of the Medical Society of the District of Columbia will be held in Washington on May 4-5, 1938. A well-balanced program has been arranged and members of neighboring state medical societies are invited to attend. Further information concerning the Assembly may be secured by writing Dr. J. Lloyd Collins, 1718 M Street N. W., Washington, D. C.

DR. McCLUNG RAMP KING

Dr. James McClung of Richwood, Association Councillor and Past President of the West Virginia Hospital Association, has announced the annual meeting of the Richwood Ramp Club to be held at Camp Woodbine on Cranberry River on April third. A number of doctors throughout the state are active members of the ramp club. Dr. McClung is president of the organization and serves each year as toastmaster.

Invitations to the annual affair have already been mailed out. The menu consists of "ramps, boiled, fried or cold with sow belly bosom, cornbread and fried potatoes." Dr. McClung has announced that every guest must have written permission from his wife to attend—the club assuming no responsibilities.

SAN FRANCISCO TOUR

Much interest is already developing in the American Express Company's San Francisco Tour in connection with the annual meeting of the American Medical Association next June. The West Virginia State Medical Association, along with approximately 25 other states, has designated the American Express Company as the official Tour Agency for this state.

The doctors will leave Chicago on deluxe special trains on the evening of June 6 and will proceed to Los Angeles through Kansas, New Mexico and Arizona. Various side trips will be made en route, including Grand Canyon and the Indian Pueblo District. The train will arrive in San Francisco on Monday morning, June 13 for the opening of the American Medical Association convention.

Two options are provided for the return tour which will leave San Francisco on Friday, June 17. The first is through Portland, Seattle, Lake Louise and Banff Springs. The second is through Yellowstone National Park. Those who make the Canada trip will get back in Chicago on Saturday afternoon, June 25. Those who make the Yellowstone trip will get back in Chicago on Monday morning, June 27.

The American Express tour is an all expense tour, including meals, sight-seeing tours, side trips and tips but does not include the week in San Francisco.

Complete information relative to the tour may be obtained through the office of the American Express Travel Service, 3 E. 4th Street, Cincinnati, Ohio.

GOITER CONFERENCE

The American Association for the Study of Goiter, announces that the Third International Goiter Conference is to convene in Washington, September 12 to 14, 1938.

Physicians in the United States desirous of participating in the program are requested to submit titles at their earliest convenience. Since the time which it is possible to allocate on the program is obviously limited, it will be necessary for the Program Committee to exercise its best judgment in the selection of speakers.

Manuscripts of addresses, papers and discussions delivered or read at the meetings are to be published in extenso in the form of transactions. The official language of the Conference shall be English. Interpreters will be furnished for papers read in other languages.

The chairman of the Program Committee is Dr. Allen Graham, 2020 East 93 Street, Cleveland, Ohio.

1937 HOSPITAL ADMISSIONS

A total of 9,221,517 persons were admitted to the 6,128 registered hospitals in the United States during 1937, according to figures just released by the Council on Medical Education and Hospitals of the American Medical Association. The average hospital confinement was 12.6 days; a total of 344,719,140 patient days. The rate of occupancy was 70 per cent of capacity.

The reports showed that 939,912 babies were born in hospitals in 1937, an increase of approximately 100,000 over 1936.

In addition to the 6,128 registered hospitals, 100 new hospitals were opened in 1937, seventy were under construction and 179 planned or being developed.

The average number of persons entering the hospitals daily during the year was 25,267. That meant that one person in each group of 14 was placed in a hospital bed last year.

MEDICAL COLLEGE OF VIRGINIA

The fourth and final symposium of the Medical College of Virginia, Richmond, will be combined with the annual Stuart-McGuire Lectures and will be held in Richmond on April 28-30, 1938. Guest speakers will include Dr. George R. Minot, Professor of Medicine, Harvard Medical School; Dr. O. H. Perry Pepper, Professor of Medicine, University of Pennsylvania School of Medicine; Dr. Edward D. Churchill, Professor of Surgery, Harvard Medical School and Dr. Harvey B. Stone, Associate Professor of Surgery, Johns Hopkins University School of Medicine.

Obituaries

DOCTOR HENRI P. LINSZ

Dr. Henri P. Linsz, prominent in medical, educational, musical and fraternal circles throughout the state died March 13, 1938 at his home in Wheeling. He was 69 years of age and had been in failing health for several years.

The son of a Lutheran clergyman, Dr. Linsz was born in Baltimore, Maryland. He received his early education in the public schools of Philadelphia and later entered Jefferson Medical College from which he was graduated in 1894.

Dr. Linsz began the practice of medicine in Moundsville. In 1895, following his marriage, he took up his residence in Wheeling where he has since practiced.

Prominently identified with the organization of his profession, Dr. Linsz was a past president of the West Virginia State Medical Association, a Fellow of the American College of Surgeons, member of the Ohio County Medical Society, member of the Consultant and Surgical Staffs of the Ohio Valley General Hospital and Wheeling Hospitals, member of the W. W. Keen Surgical Society of Philadelphia, Southern Medical Association and the Society of Applied Psychology. He had also served as an assistant editor of the International Journal of Surgery. Dr. Linsz was also a member of the American Railroad Surgeons Association, having served as surgeon of both the Pennsylvania and Wheeling and Lake Erie railroads. He acted as president of the Association of Pennsylvania Railroad Company Surgeons.

Despite the many demands of his time made by his profession, Dr. Linsz found time for many activities, mainly education and music. He was an organist and pianist of ability, and a graduate of the Conservatory of Music of Philadelphia.

Surviving Dr. Linsz are his widow and two daughters.

DR. M. H. PROUDFOOT

Dr. Milton Hall Proudfoot died at his home in Rowlesburg on March 21, 1938, at the age of 76 years. A native of Taylor county, he settled in Rowlesburg after his graduation from the Starling Medical College at Columbus, Ohio in 1884. He received his early education in the public schools of Taylor county. Dr. Proudfoot was a member of the Preston County Medical Society, a former president of that organization, an honorary member of the State Medical Association and a member of the American Medical Association. He was also a former member of the State Board of Health.

Last June Dr. and Mrs. Proudfoot celebrated their golden wedding anniversary with a public reception for their many friends throughout the county. Surviving are the widow and one daughter.

Woman's Auxiliary

FAYETTE COUNTY

The Fayette County Medical Society Auxiliary met at the Mountainair Hotel, Mt. Hope, W. Va., on March 17. Mrs. H. F. Troutman, president, was in charge of the meeting. Ten members were present.

Mrs. S. W. Price of Scarbro was the principal speaker. Her subject was "Colonial Medicine." This was received with much enthusiasm by the audience.

Election of officers was held and the following members are the new officeholders:

President, Mrs. B. F. Brugh, Montgomery; president elect, Mrs. Ralph Hogshead, Montgomery; first vice president, Mrs. C. W. Stallard, Montgomery; second vice president, Mrs. R. D. Ketchum, Longacre; third vice president, Mrs. G. G. Hodges, Kilsythe; treasurer and secretary, Mrs. R. A. Updike, Montgomery.

MRS. R. D. KETCHUM, *Secretary*.

HARRISON COUNTY

The Auxiliary to the Harrison County Medical Society met on March 3 at the Stonewall Jackson Hotel, Clarksburg. Mrs. A. J. Kempre, president, opened the meeting.

Mrs. George F. Evans was the principle speaker. Her topic was "Recent Medical Legislation in West Virginia."

The Nominating Committee's report was accepted and the following officers were elected:

Mrs. H. H. Esker, Clarksburg, president-elect; Mrs. James Ralston, Clarksburg, vice president, and Mrs. Creed C. Greer, Clarksburg, secretary-treasurer.

The next meeting of the Auxiliary will be held April 7, 1938 at the Stonewall Jackson Hotel at 6:00 p. m.

ELAH PETTIT EVANS, *Secretary*.

KANAWHA COUNTY

The Auxiliary to the Kanawha Medical Society met at the Southern Methodist Church, Charleston, March 8. Luncheon was served at one o'clock p. m. Thirty-two members attended the meeting.

Mrs. Benjamin S. Preston was the principal speaker. She was assisted by Mrs. P. A. Tuckwiller

and Mrs. H. A. Swart. The chief topics were of a legislative nature.

MRS. P. A. HALEY, II, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society Auxiliary met at the home of Mrs. B. C. Harris, Logan, W. Va., March 1, 1938. Fourteen members attended.

A paper "Optometry on Trial" was read by Mrs. Edwin Matthews. This was a very interesting presentation and evoked much discussion among the listeners.

Plans were made for the observance of "Doctor's Day" which will be March 31, at the Masonic Temple, Logan. There will be a "Dutch Supper" served and the program will be in charge of Mrs. Edwin Matthews. All doctors and their wives are invited.

The next meeting of the Auxiliary will be held April 4, at the home of Mrs. George Heinitsh, Greenmont.

MAE PATTERSON, *Secretary*.

PARKERSBURG ACADEMY

Mrs. R. H. Wharton and Mrs. Ben O. Robinson were hostesses at the luncheon meeting of the Woman's Auxiliary of the Parkersburg Academy of Medicine held at the Chancellor Hotel ,March 8.

Luncheon was served and followed by the business meeting with Mrs. O. D. Barker, president, presiding.

Mrs. B. S. Parks, who is general chairman for the annual "Doctor's Day Dinner" at the Chancellor Hotel the evening of March 31, reported that plans for this event were completed.

"Food After Forty" was the title of an interesting paper read by Mrs. Welch England.

Twenty-three members were present.

MRS. B. O. ROBINSON, *Secretary*.

HEART FAILURE

How are we to reach that class of individuals who have pathologic conditions which predispose to heart failure of which the individual is probably unaware? First, by advocating periodic physical examinations for everybody, and second, by keeping under observation, for considerable time after the acute stage, those known to have had rheumatic fever, chorea, diphtheria, influenza or other infectious diseases so frequently complicated by cardiac involvement.—J. E. Knighton, Sr., M. D., in *Tri-State Med. J.*, Dec., 1937.

Neighbor Journals

SOCIAL SCIENTISTS AND MEDICAL CARE

Michael Davis, Ph.D., of New York, has recently circularized the profession quite generally and has codified the "Social Scientists'" viewpoint in regard to "organized medical care." These two final sentences in his summary deserve impartial scrutiny: "Medical service must be judged from the point of view of the people who receive and pay for it, as well as from the standpoint of the physicians and institutions that furnish it. The participation of medical and social scientists is therefore needed in appraisal as well as in planning, and the rate and smoothness of progress will depend largely upon ungrudging coöperation between physicians and the public."

It would appear that the science in social achievement is on a par with that which obtains in medicine, if we are to accept the author's thesis. It is not for us to acclaim that we represent science in all our medical achievement. Much of what we individually accomplish may well be grouped under priestly or even less dignified effort to appease the unrest inherent in man's conflict with his consciousness.

We may go a considerable distance with the social propagandists and lend them recognition, and even example (should they seek to follow it), in seeking to utilize science in their economic and humanitarian efforts, but at this time it is only reasonable to ask them how far they have gotten. Some ten years ago I overheard in Switzerland a distinguished Continental economist remark that social economics and political government were at the stage of scientific attainment that astronomy held when Copernicus announced his theory of the universe! It is said that one of the major causes for wreckage in the recent German Republic was the attempt to accomplish social and economic security by edicts. Many of these dealt with matters of health, unemployment, old age, and the usual penalties of circumstance. Idealistic efforts no doubt added to the immediate popularity of a socialistic regime. It all looked very promising on paper. Within a comparatively short time, however, these measures lent disaster, not only to organized medicine but to the economic stability of a country tested far beyond its capacity. Reform had outrun itself.

Missionaries have long resorted to approaching the heathen's soul via the route of caring for his bodily ailments. There is a subtle compliment to our profession in that observation. These social and economic reformers would enjoy teaming up with us in order to make more palatable a re-deal of the cards in a game in which they establish most of the rules and base all of them upon experiment. "The public medical care" is indeed a problem. However, the success in the Twin Cities, in Minnesota, of the hospital insurance plan for employed groups, would indicate that the hospitals at least are far from ready to turn over their management to governmental bureaucratic guidance. Movements of this order point the way for tying up our scientific heritage with such portions of social advancement as are workable and judicious. We have come a long way in a muddling world; and for the most part independent of government subsidies or entanglements. Whatever socialization we absorb should be like the dosage of our drugs—"quantum sufficit," and no more.—*Minnesota Medicine.*

RUSSIAN MEDICINE

When Eugene Lyons took an assignment as United Press correspondent in Russia, he was rated as a Soviet sympathizer. Seven years in Red Russia gave him an insight of the country which gradually changed his point of view. In his recently-published book, "Assignment in Utopia", Lyons presents some illuminating and tragic observations about the great experiment.

Part of "Assignment in Utopia" deals with medical practice under Russia's governmental system of medical care. Those who would like to see such a system installed in the United States undoubtedly will not use his reports for their propaganda barrage. He writes:

"We came, unluckily, to know a lot more about Soviet medical practice than most of our colleagues. Like the 'stable' currency and the wonderful educational methods, the socialized medicine under the official statistical surface was a snarl of contradictions, shortages and ineptness. Doctors and dentists regarded their obligatory work for the state as an exaction and depended on private practice for their real income. The more famous medical specialists did not budge for less than fifty or a hundred rubles; often it required 'pull' to get their services at any price. The public health service was by all odds inferior to the free public and charitable health services available to the poor in cities like New York or Chicago."

While in Russia, Mrs. Lyons was compelled to seek hospitalization at Botkinsy Hospital. That it was anything but a pleasant experience is indicated in Lyons' description of the system as it operated in that institution:

"Billy improved rapidly, despite the special care, and was soon well enough to watch the conduct of that hospital by way of sociological diversion. If I had not been there day after day and seen some of the primitive and careless procedure myself, I should have thought the details she told me were the effects of delirium. Only a few of the women were trained nurses—the others were ignorant girls of the servant type. They stomped up and down corridors and banged doors and called for one another in loud voices. Except under unusual circumstances, bed linens were changed once a week. The blankets were not washed but merely disinfected, so that they were crusted with the dirt and vomit of previous patients. The precious rules prohibited the bringing of linens, blankets, or other accessories from outside. But by devious means I smuggled in everything Billy needed, and doctors, nurses, patients came to her ward to inspect and exclaim over the fleecy American blankets; the hospital buzzed with the news of a foreigner who changed her sheets, her nightgown, and even her pillowcases, every day.

"The doctors, Billy thought, were capable but overworked. I succeeded—again by outraging the blessed rules—in having our own physician, who was familiar with her case, treat her. As soon as she could be moved safely she returned home.

"Ever after, the glowing reports of socialized medicine in Russia in American books and magazines have been a source of amusement to us. Always we have wished their authors only one punishment—a week or so as patients in the second-best hospital in Russia."—*Ohio State Medical Journal.*

CHARGING PHYSICIANS

At a recent regional hospital convention in one of our Canadian provinces a resolution was presented favoring a ruling among all municipal hospital boards that physicians practicing in such hospitals be required to pay 10 cents per patient day for all patients in the hospital under their care. This resolution, which would cover both private and nonpaying patients, was based upon the "whereases"

that municipal hospitals are built, equipped, and staffed at the expense of the ratepayers, and that physicians, while contributing nothing towards such cost, use these hospitals for the furtherance of their practice, and benefit to the extent to which such hospitals are equipped and staffed. The resolution was lost.

The viewpoint expressed by this resolution crops up every once in a while. It is sometimes advanced when fund-raising campaigns are in progress, it being claimed that the hospitals are being financed largely for the physicians' benefit. Those holding such views, and they are much in the minority, overlook entirely the fact that the patients are the real beneficiaries, and that, if the hospital enables the physician to do finer work and get better results, it is really his patient who gains. It is quite true that the physician's work is made easier by the hospital, particularly in surgery and obstetrics, and that these facilities are often provided for him without his effort, but he contributes in many ways. Physicians give a tremendous amount of service to the hospital without regard, attending nonpaying patients, looking after nurses and maids, lecturing to the nurses if there be a training school, serving on various hospital committees, etc. Moreover, in the case of the municipal hospitals the physicians have usually contributed heavily, as most physicians are property owners. In this particular province most physicians look after their own nonpaying patients in the public wards, and the adoption of such a measure would probably mean a natural disinclination on the part of the physicians to assume the gratuitous care of these poor patients—and pay for the privilege.—From the *Canadian Med. Assn. Jour.*, May, 1937.

MINIMUM MARRIAGE AGE

Marriage under age 16 for boys and age 14 for girls is forbidden in the French possessions in India by decree of the President of the French Republic, July 30, 1937. The Governor may grant exemptions under certain conditions. Provision is made for the annulment of marriages contracted in violation of this decree and for the punishment by fine and imprisonment for six days to one month of parents or guardians promoting such marriages.

This action was taken to put an end to a situation by which child marriages, strictly forbidden in British India, were entirely legal in the French possessions. The age limits set are in accordance with

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the recommendations of the General Council representing the population of the French possessions in India.—*The Child*, November, 1937.

HEREDITY AND EUGENICS

Heredity and eugenics is one of the current and persistent points of social and scientific consideration. Finesse in race selection is recommended for race supremacy.

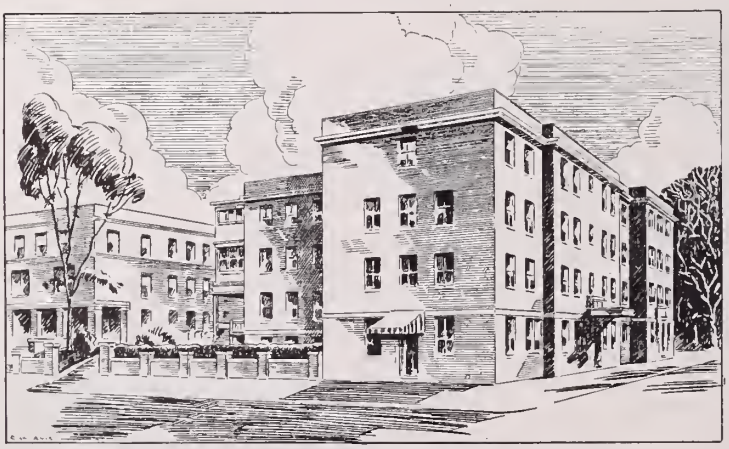
In a discussion of the results of mating between superior, inferior and mediocre individuals Doctor Davenport shows various poignant premises. Among these are statements that:

"With exceptional parents some of the offspring will be exceptional individuals but also that, whatever the parentage, many individuals will be inferior in respect to many or even all essential characters, and these are known as degenerates.

"Animal breeding has two distinctly different objects, arrived at by almost opposite methods: 1. the promotion of a few exceptional individuals, like race horses and fancy stock generally; 2. the raising of the general average of the breed. In the first case, only exceptional individuals are used for breeding purposes. Some would imitate this procedure with humans, but Davenport holds that we secure the same results in a good degree through preferential mating. It is not true, as a rule, that people choose opposites. On the contrary, tall tends to marry tall, and short, short; musical, musical, and in like sequences.

"To go beyond this natural result of preferential mating, we should be obliged to apply to our marriage laws of the best people, such restrictions as would dangerously interfere with the deepest human instincts, in which attempts we should either fail, or else we should blot out of the race its choicest asset and most valuable character—love. The raising of the average may be attained by breeding from the few or by excluding the lower limits of the race. We can not exclude as widely as the animal breeder does, but we can aim at the absolute exclusion of the degenerate. Davenport sums up by saying that he can not approve the oft-proposed interference with the marriage relations of normal people. Any mistakes they make will be blotted out mechanically and will not permanently weaken the race, or greatly hamper it at any given moment. But he would deal differently with the criminal class and take every opportunity to eliminate them

McMILLAN HOSPITAL Charleston, W. Va.



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from the possibility of reproducing their kind when they are once adjudged to be degenerates.—*Illinois Medical Journal.*

WOMEN'S FIELD ARMY

After a year's experience in nearly forty states the Women's Field Army Against Cancer of the American Society for the Control of Cancer is extending its work into practically every state. This program is unique in the history of health education movements in that from the beginning the medical profession has been asked to direct the work. In every State lay leaders have been appointed only with the approval of medical organizations.

In this Women's Field Army plan lay speakers are discouraged from lecturing on the scientific aspects of cancer. This phase of the program has been placed in the hands of physicians in the belief that physicians are the properly qualified persons to discuss this subject. The activities of lay workers are restricted to organization and related problems. It is thus seen that the program is being developed along lines in accord with the established principles of the medical profession. By this same token there is placed on the physician the responsibility of making the program as effective as possible.

The program is built around the fact that early cancer is curable, and to detect it in early stages periodic examinations even of apparently well individuals are necessary. As a result of the public discussion of this subject thousands of persons for the first time have sought examination by their physicians to determine the presence or absence of cancer. As the program develops thousands more will ask for the same service. This makes it essential that physicians be on the lookout for precancerous lesions as well as signs of early cancer, and conduct these examinations in as thorough and painstaking a manner as possible. A patient requesting such an examination is entitled to the best service the physician can give, regardless of objective absence of disease. After obvious signs of cancer appear it is often too late to render a curative service; therefore, no physician should make light of any patient's request for examination.

No physician should hesitate to avail himself of facilities for obtaining the answer to the patient's problem when such facilities are not at his immediate disposal. The diagnosis and treatment of cancer is a group problem, and no physician has the ability alone to cope adequately with all forms of the disease.

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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

ASSOCIATE EDITORS:
J. HOWARD ANDERSON
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CHRONIC NONTUBERCULOUS LUNG INFECTIONS*

By JOHN H. SKAVLEM, M. D., F. A. C. P.
Cincinnati, Ohio

The most common etiology of chronic lung infection is tuberculosis. But there are several other causes for chronic pneumonitis, whose onset, symptoms, clinical and pathological pictures closely simulate tuberculosis or those of each other. It is a grave mistake to treat any patient for tuberculosis because of chronic cough, expectoration and blood spitting, in the absence of positive sputum, unless the possibility of other etiology has been carefully considered. With such differential studies in mind I invite your attention to some other chronic lung infections.

BRONCHIECTASIS

Bronchiectasis essentially consists in dilatations of the bronchus, excessive secretion tending to accumulate in the dilated portions, the walls of which may be either thickened or thinned. It occurs in all ages. When we review our cases of bronchiectasis or study the history of any individual patient we are impressed with the stretch of time that elapses between the onset of the patient's symptoms and the correct diagnosis. In the adult the interval of symptoms is usually years and in childhood a proportionately long period intervenes. This is regrettable because surely, if relief of permanence is to be gained, an early diagnosis is necessary. It may not kill as surely as tuberculosis nor as quickly, but grade for grade bronchiectasis is more disabling and more intractable symptomatically than pulmonary tuberculosis. If this is kept in mind one must feel that it should be treated as early and as effectively as possible.

In considering the factors which enter into the production of the disease we can divide them as follows: 1. Developmental. 2. Factors which weaken the wall of the bronchus. 3. Factors of force acting on the walls of the bronchi. The congenital and developmental factors are important. At birth larger or smaller lung areas may fail to open and remain atelectatic. It has also been shown that certain lung areas which at birth may expand may later recollapse. The development and differentiation of the terminal air passages is disturbed and bronchiectasis results. The

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lower posterior paravertebral parts of the lung, particularly on the left side, posterior to the heart are the sites of predilection for atelectasis in infancy. Such developmental disturbances lead to the anatomical abnormality of dilated bronchi and predisposition to the later development of bronchiectasis.

BRONCHIAL DILATATION

Bronchial dilatation alone is only an anatomical abnormality. Bronchial dilatation plus accumulation of secretions and infection constitutes clinical bronchiectatic disease. The condition common to all cases of bronchiectatic disease is an inflammatory change in the bronchi themselves. The dilatations are caused by a loss of elasticity and muscular contractility. Before established bronchiectasis takes place there must be prolonged gradation of minor pulmonary changes of greater or less permanence. For this reason it is important to detect the prodromal stages early. Here is a situation that emphasizes the importance of recognizing in the lungs of children all focal changes of infectious nature. During childhood any infection is met by marked lymphatic response. This is true because immunity to various infective organisms has not yet been developed and the child's defense to infection is in the lymphatic system. Therefore, in lung infections of childhood the interstitial framework and peribronchial tissues are frequently invaded; there is associated engorgement of lymphatic vessels and enlargement of the lymph nodes in the lung and at the hilum. Frequently these changes interfere with the free circulation of air in the bronchi. Such infections are apt to resolve slowly and result in more or less permanent bronchial and pulmonary sequelae. Influenza or bronchopneumonias associated with measles or pertussis are particularly apt to lead to such chronic changes. Undoubtedly, the lungs of children frequently harbor unnoticed and unsuspected foci of chronic infection. It is very possible that in many cases ill health in childhood which passes for disturbances in the nose, throat, tonsils or ears, may in fact be occasioned by already established foci in the lungs. We all know that there are cases where everything corrective and curative has been done in the upper air passages yet health is impaired because of oversusceptibility to colds and its consequences. These children are classified as having delicate constitutions. It is only when a severe cold and bronchopneumonia strikes that definite evidence of lung disturbance is found. If this child is observed and followed it is found that râles persist over the localized area of the involved lung for a long time. X-ray chest films show abnormal changes in the involved spot and this may persist long after the child is clinically well. Furthermore when this cycle of severe cold and patch of pneumonia is again repeated in a subsequent winter it is found that the same lung area is involved. The râles are heard over the same spot and the x-ray changes are accentuated. It is plain that pneumonia is originating in an already established focus of diseased tissue. Perhaps the pulmonary focus had originally developed in association with infection in the upper respiratory tract. But once established it has remained after the upper respiratory infection has been relieved. These entrenched focal infections lead to recurrent bronchopneumonia and with each attack the child shows more constitutional effects. Here is the groundwork for bronchiectasis.

FUNCTIONAL DISTURBANCES

The changes wrought by infection in the bronchi and surrounding lung tissues lead to functional disturbances in the bronchi. The normal cleansing power of the bronchi is extraordinary. It is estimated that the amount of fluid poured into the adult lung from the blood is 800 c.c. daily. This is evaporated from the lungs. In addition there is considerable amount of secretion from the bronchial glands and a great deal of inhaled foreign material which must be gotten rid of. With the loss of elasticity and muscular contractility there is serious disturbance of this cleansing function and accumulation of secretions takes place. Obstruction of the lumen

of the bronchus may also lead to accumulation of secretions. This may occur in new growths, aneurysm, atelectasis, gumma, foreign body, or distortion of the bronchus by surrounding fibroid changes.

COUGH

Of the mechanical forces acting on the weakened bronchus wall, cough is perhaps the most constant and detrimental. It represents the greatest force that can arise within the lungs. As inflammatory changes increase and stagnation of secretions becomes more, and the weakening of the bronchus wall progresses, cough becomes worse and more persistent. Cough serves not only to discharge the contents of the bronchus outwardly but frequently, because it exerts a forcible inward air movement, it drives the contents further down into the bronchi. The damaging force of cough is accentuated when bronchial obstruction, whether distal or proximal, impedes the exit or entrance of air. This is true in foreign body, new growths, aneurysm or atelectasis.

When the normal alveolar texture of the lung is obliterated by fibrous scar, the tendency of the inspiratory force is to widen the bronchi. Furthermore the shrinkage and contraction of the fibrous tissue produces a dilating force on the bronchus wall. Pleural adhesions add to this force. This is especially true in chronic fibroid pulmonary tuberculosis. Bronchiectasis is a very important clinical factor in arrested pulmonary tuberculosis. (Fig. 4) In such cases, due to residual bronchiectasis, cough and expectoration may persist. To the patient these are the symptoms of active pulmonary tuberculosis and the complaint for which he sought relief when he followed through the cure. It makes it difficult for the patient to return to his normal social life because to his family and associates cough and expectoration mean tuberculosis. We have had patients refused a return to school or work because persistent cough lends the fear of remaining active tuberculosis. Blood spitting and hemorrhages may occur lending further difficulty to the problem. It greatly taxes the diagnostic ability and clinical judgment of the doctor to be certain that such symptoms of cough, expectoration and blood spitting are due to complicating bronchiectasis and not activity in a case of pulmonary tuberculosis. The x-ray chest studies and repeated sputum examinations are of greatest value.

In old empyema, bronchiectasis amounting to complete loculation of a lobe may result. Lung abscesses healed by postural drainage, pneumothorax or surgery frequently results in residual bronchiectasis.

A few symptoms I wish to discuss. The cough and expectoration are paroxysmal. The patient coughs up a considerable amount in the morning and then may be relieved for several hours. The sputum may be scant in

FIG. 4. Roentgen-ray of the chest of a case showing bronchiectasis both lower lobes; complicating arrested pulmonary tuberculosis both upper lobes. Lipiodol injected in bronchi.

early cases but later and eventually as stagnation increases, invasion by anaerobic organisms such as spirochetes, spirilla and fusiform bacilli takes place and then the change is signalized by the offensive nature of the discharge. Fever is usually in inverse relation to the drainage. When expectoration is plentiful, little or no fever is present. If bronchi become plugged blocking drainage, sudden

and high fever may develop. Blood-streaked sputum is common. Hemorrhage is not infrequent. It may be severe and often is very persistent. Commonly it is the initial symptom for which the patient seeks medical advice. We have seen hemorrhage persist for three weeks from a small localized bronchiectasis in one lower lobe. The reason for persistent and ofttimes serious hemorrhage is this —the bleeding is from the bronchial artery. The bronchial artery is embedded in the wall of the bronchus which is held rigid by presence of cartilage. Hence contraction of the vessel is not as easy as in the case of a branch of the pulmonary vessel. More important is the fact that the bronchial arteries arise directly from the descending aorta or from the intercostal arteries, hence they are part of

FIG. 3. Roentgen-ray of the chest of a case showing bronchiectatic-atelectatic lower left lobe. Lipiodol injected in bronchi. Upper left lobe large and emphysematous.

the general systemic circulation. The pressure in the systemic circulation is higher than in the pulmonary circulation. Clubbed fingers and curved finger nails are a very common finding even in early bronchiectasis. I desire only to call your attention to the fact that these can and do improve as the bronchiectasis is relieved.

In the diagnosis of this disease the advent of opaque oil injections into the bronchi has marked a big advance. It has shown us how much more common is the disease than we previously knew. It has taught us that early bronchiectasis can exist without abundant, foul sputum. The recognition of early localized bronchiectasis especially in areas difficult to visualize by x-ray such as posterior to the heart, has been a notable advance. (Fig. 3) Cases of hemorrhage with no demonstrable pulmonary tuberculosis often find their ex-

FIG. 1. Roentgen-ray of injected bronchi in lungs removed from body.

planation in such a demonstration of localized bronchiectasis. Undeveloped atelectatic areas or lobes are now demonstrable in x-ray chest films where previously they were the findings of the pathologist. In order to study fully and correctly the bronchi on x-ray chest films, either with or without lipiodol injection, we must first understand and be able to visualize the normal divisions of the bronchi. For this study we have made an x-ray classification of these bronchial markings as seen on stereoscopic x-ray chest films. These divisions of the bronchi have been verified by anatomical dissections of the lungs and injection of the bronchi postmortem. (Fig. 1, Fig. 2).

In bronchiectasis prophylaxis is especially to be desired. From what has been said it is

obvious that we must look especially to corrective measures in early life. Bronchi handicapped in their development or damaged by disease in early life constitute the groundwork for the action of bacterial infection, which is the actual cause of bronchiectatic disease. The bronchopneumonias of pertussis and the exanthemata should be adequately treated and convalescence carefully guarded. The establishment of chronic foci of infection in

FIG. 2. Roentgen-ray of injected bronchi in a cadaver.

the lung tissue can undoubtedly be prevented in many cases by paying attention to repeated minor colds. The winter months are the dangerous ones and the child must be fortified by proper dress, food, rest and environment. A winter in a warm dry climate as a convalescence from a troublesome bronchopneumonia may prevent crippling from bronchiectasis in later life. Infections in the upper air passages, tonsils, nasal sinuses, ears, and teeth must be given care with sound medical judgment.

Treatment is directed toward securing the best possible drainage from the bronchiectatic areas. Certain postures facilitate drainage. Many patients learn by experience the position of the body which encourages the best drainage of the bronchi affected. Bronchoscopic drainage is effective in localized areas especially in cases where obstruction of the bronchus by foreign body or new growth is an element in the cause. Collapse therapy by pneumothorax has its place. This procedure by collapsing the lung promotes drainage. The collapse should not be done too rapidly or too completely so as to produce kinking of the bronchus. By thorough drainage of the bronchi and the rest from respiratory function the way is paved for a gradual healing of the bronchopneumonia infection. This collapse therapy is especially effective in cases showing diffuse involvement; in cases where the cavitation is extensive, or in those cases where lung abscess accompanies. With this procedure the discharge rapidly diminishes, the cough becomes less, fever is stopped and the general condition of the patient improves. Partial collapse of the lung can be accomplished by phrenicotomy. This is used where pneumothorax is impossible or in localized bronchiectasis in a lower lobe.

In cases where the more conservative measures fail, surgery with thoracoplasty, or lobectomy is used. With improving technique in chest surgery these measures are not to be feared in the hands of well trained surgeons.

The use of arsphenamine intravenously is very valuable in certain cases where spirilla or spirochete are elements in the infection. Patients so treated admit great relief from the decrease in the amount of offensive sputum.

Repeated injections of lipiodol into the diseased bronchi is very effective therapeutically and we commonly use it. We have been encouraged in following this procedure by the request of patients who return asking for another injection of oil.

As a general treatment a warm dry climate, especially in winter months, adds to the patient's comfort and lessens the chances for new acute respiratory infections.

CONGENITAL CYSTIC DISEASE

Occasionally we find cases presenting multiple cavities in the lungs which cannot be explained by the destructive changes of ac-

quired infection. The cavities are thin walled, of various sizes and show a striking lack of surrounding fibrosis or infiltration. The precise pathogenesis of this condition cannot be stated with certainty but the opinion prevails that it is due to a developmental malformation of the bronchi. At birth the infant's lungs are in fetal stage. There is a great amount of interstitial tissue. The bronchi extend out from the roots of the lungs, ending in the buds as yet undistended. At the first breath of life the buds distend forming large alveoli. Later growth consists in the development of new branches in the peripheral part of the bronchial tree and new alveoli are constantly developing. The growth and differentiation of the lung does not occur at the same pace and in the same manner in all parts of the lung. Likewise the rate and manner of development shows individual differences. It has been shown that there is variation in the rate at which individuals grow out of the infantile lung period varying from three to fourteen years. Some persons may retain a portion of undifferentiated infantile lung for a good many years even up to adult life. Such lungs have more interstitial tissue; the bronchial branching is less complex; there is less cartilage in the walls, and the lymph channels are more extensive.

DISTENTION

If, during prenatal life, the normal bronchial branching has been interfered with, then at birth with the opening up of the lungs instead of alveoli forming from the bronchial buds, distention takes place. This bronchial distention may be general or local. Later parts of these bronchial distentions may be stretched out so as to become completely shut off from the stem bronchus. Thus bronchial distention develops into cystic disease of the lungs. Usually bronchiectasis and cysts occur along side of each other. Added to this anatomical evidence is clinical experience and pathological studies. Cases are reported of infants suffering severe recurrent attacks of dyspnea and cyanosis. Some of these attacks end fatally and at autopsy it is found that the lung presents many cyst like cavities. The cysts are lined by a layer of epithelium which may be flattened, cuboidal or ciliated. Sometimes the remains of a bronchus wall may be found. Usually the cysts do not show communication with the bronchi. Absence of pigment within the wall or vicinity of the cavities is significant in indicating the lack of function of the tissues. The cysts may be numerous and small so as to give the lobe or lung a honeycomb appearance or there may be a huge solitary cyst which may occupy the whole pleural space on one side.

SYMPTOMS IN CHILDREN

In children the most prominent symptoms are recurrent attacks of dyspnea and cyanosis, with or without cough. These symptoms may be so mild as to be overlooked in childhood. In adult life the symptoms come either from disturbance of lung function due to expansion of the cysts or more commonly from infection in the cysts. Not infrequently the condition is accidentally discovered during a röentgenoscopic or röentgenographic examination of the chest. Cough and expectoration are dependent on the open communication with a bronchus and the presence of infection. When severely infected the clinical picture is that of lung abscess. In fact, most of the cases in adults present themselves for study only when the symptoms due to infection develop. Blood spitting or frank hemorrhage is not unusual.

The diagnosis is made mainly by the röentgenographic evidence. A careful history showing symptoms present from birth or early childhood is very significant. The röentgenographic findings varying with the type of cysts that are present. A solitary cyst containing fluid shows a dense opaque shadow, sharply circumscribed in outline which lies within the lung parenchyma. The size of the fluid cyst remains stationary for a long period of time. This helps to differentiate it from a solid tumor. A solitary cyst with no fluid reveals a localized area of decreased density with thin or moderately thick walls. No lung markings are seen in the cyst area, but fine

fibrous strands representing trabeculae may be visualized. This type of cyst must be differentiated from an emphysematous bulla. This may be extremely difficult. It is well to study the lungs for further evidence of general pulmonary emphysema and scrutinize the history for factors in its development. Remember too, that emphysema is very apt to develop and accompany cystic disease so that emphysematous bulla and cyst can exist in the same lung. A large solitary cyst can

FIG. 5. Roentgen-ray of the chest of a case showing cystic disease left lung.

closely simulate pneumothorax. (Fig. 5) In pneumothorax you do not see the trabeculae which are apt to be present in a cyst and the size does not remain unchanged for a long period of time. But in some cases in order to differentiate the two conditions it is necessary to insert a needle and produce an artificial pneumothorax so as to compress the lung and visualize the wall of the cyst.

Multiple cysts with air are shown as sharply defined thin wall cavities, discrete in outline, irregular in size and arrangement. There is striking lack of surrounding infiltration in the lung.

The use of lipiodol may aid in the diagnosis. When there is bronchial communication with the cyst, lipiodol injected through the bronchus will fill out the cavities and help to visualize their size, arrangement and thickness of the walls. If there is no bronchial connection the lipiodol will serve to demonstrate the plugged bronchi and aid in studying the shape and size of the bronchi and condition of the air cells surrounding the cyst. In the case of a large cyst close to the chest wall the lipiodol may be injected by thoracentesis. The opaque oil will help to outline the limitations of the cyst and show its walls and outline.

The treatment of congenital cyst depends upon the symptoms it is producing. Many cases exist only as anatomical deformities producing no disturbances of lung function and so require no treatment. When infection is present it requires the same treatment as bronchiectasis or lung abscess. When severe disturbances of lung function are produced by the progressive expansion of the cysts then surgical removal of a lobe or the whole lung may be necessary.

ABSCESS

Abscess is a localized suppurative inflammation in the lung eventuating in tissue destruction and cavity formation. It is due to pyogenic organisms entering the lungs by the air passages, blood stream or from contiguous structures. The organisms involved are most commonly streptococci, staphylococci, Friedlander's bacilli and a variety of anaerobes, especially the spirochete and fusiform bacilli. Inhalation of septic material is by far the most important and greatest producer of abscess. At least fifty per cent of lung abscesses are due to aspiration. Yet it is striking that although the inhalation of large numbers of bacteria and extension of inflammation must be common, especially in those who have disease of the upper air passages, yet abscess formation is relatively rare. It is also true that in animal experimental work it is impossible to produce abscess by simply pouring virulent pyogenic bacteria into the lungs by the bronchi or blood stream. But if local trauma is made in the lung tissue then abscess

readily forms at the site when the bacteria are carried into the lung by bronchi or blood stream.

By far the largest percentage of cases due to aspiration follow operations on the upper air passages. Tonsillectomy is the most common. The removal of adenoids, nasal operations, extraction of teeth and operations on the jaw, tongue or other parts of the mouth and pharynx help to swell the number. In most cases a general anesthetic has been used but this is not necessary. Aspiration of food, blood or mucous containing infecting bacteria can also occur during unconsciousness, coma, or intoxication. It must also be remembered that a blow or injury to the chest can result in aspiration into the lungs of infecting organisms from the mouth cavity. I have one such a case under my care now resulting from a blow to the chest on the steering wheel of an automobile. The accident at the time seemed relatively trivial.

A pneumonic or bronchopneumonia area may break down into abscess formation, but this development is much less frequent than was previously presumed. Abscess formation in lobar pneumonia occurs clinically in less than one per cent and at necropsy in about two per cent of cases. In fact, we believe that abscess formation following lobar pneumonia is not an accident of resolution but an independent development. The passage of a foreign body into the bronchus frequently leads to obstruction and abscess formation. Bronchial obstruction by new growth may behave in a similar way. In fact abscess formation is such a common accompaniment of bronchogenic carcinoma that when you find an unexplained lung abscess in a patient over forty years of age think of carcinoma. Extension of infection from contiguous structures occurs in bronchiectasis, empyema, especially when encapsulated and interlobar, suppurative disease in the mediastinum, vertebral column or below the diaphragm. Septic emboli carried into the lung by the blood stream may give rise to abscess. Usually there are multiple abscesses in such cases.

The diagnosis of lung abscess is usually made by the toxic manifestations, the paroxysmal cough, and especially the foul sputum. The foul odor depends not so much on the pathogenic organisms as on the presence of saprophytes which possess the power of decomposing the dead proteins. Recurring hemoptysis may occur. The x-ray examination shows a localized gross lesion which may be located anywhere in the lung, but most frequently in the bases. Lipiodol injection shows that the opaque oil does not usually penetrate into the diseased area which is different than in bronchiectasis. A cavity may or may not be demonstrated and when shown lipiodol rarely enters into it. Fluid level in a cavity is common. The edges of the inflammed area are not always sharply defined. Thickened pleura overlying may obscure the lesion.

TREATMENT

Treatment of lung abscess depends upon the etiology and location of the lesion. When due to foreign body, removal of the foreign body by the bronchoscope leads to recovery. It is striking what complete cure can follow the removal of a foreign body even after long standing where there has been gross lung destruction and cavity formation. More complete healing and restitution of lung tissue can take place following the cure of lung abscess by removal of foreign body than in any other type. In any lung abscess, where there is any possible suspicion of foreign body or bronchial obstruction, bronchoscopic examination should be made. Drainage is imperative for the cure of abscess. Postural drainage will suffice in the majority of cases. It should be tried in the usual case for at least six to eight weeks. Bronchoscopic drainage is particularly valuable in the cases when the abscess is located close to the larger bronchi. It should be freely used whenever indicated. But bronchoscopy should only be done by one who is thoroughly competent. Surgical drainage is indicated when postural drainage fails, and especially when the abscess is located peripherally and involves the pleura. I have

used pneumothorax collapse in several selected cases with good results. It can always be stopped if drainage is impeded. It must be done very cautiously.

Phrenicotomy can also aid drainage in cases where the abscess is located in the base of a lower lobe. I have used it in follow up treatment after improvement with postural drainage.

Intrabronchial injection of lipiodol in some chronic cases accompanying bronchiectasis will decrease the amount and odor of the sputum. It aids drainage and is a measure worth trying.

Intravenous injections of neosalvarsan is very useful in cases showing numbers of anaerobic organisms such as spirochete and fusiform bacilli in the sputum. It materially reduces the amount and odor of the sputum and thus helps rid infection.

GANGRENE

In etiology, pathology, clinical course and treatment, the lesions of abscess and gangrene have much in common. Gangrene is more frequently a diffuse lesion. It differs from abscess in that putrefaction rather than suppuration is the principal feature. It is not entirely clear what factors determine the production of abscess in one case and gangrene in another. In general it can be said that if the blood supply to the area involved by pyogenic infection remains good, abscess develops; but if the nutrition of the infected part is impaired either by general debility or local disturbance of circulation by thrombi then gangrene results. Especially does this happen if anaerobic organisms are the invaders. Gangrene results where symbiosis of spirochetal infection with fusiform bacilli and other organisms, especially streptococci, occurs. The fusospirochete are common inhabitants of the mouth, in carious teeth, diseased gums and tonsils.

The symptoms and signs of gangrene are similar to severe acute abscess. Prostration is usually profound. Pleural pain always occurs and bleeding is almost a constant symptom. The odor of the sputum is so unique that when once experienced can seldom be forgotten or confused with any other odor. It is putrid. The x-ray films show a diffuse, destructive, lung lesion characterized by exudate, honeycombed cavities and little or no fibrous scar formation.

The treatment is much the same as that for lung abscess. There is more justification and indication for the use of arsphenamine intravenously. The operative mortality is very high. Spontaneous recoveries following the extrusion through the bronchi of the necrotic tissue rarely occur.

SYPHILIS

Mention must be made of syphilis in order that we be mindful of this possibility in studying certain cases. Accurate information as to the occurrence of lung syphilis is not available. It is true that its diagnosis during life or at postmortem is rare. It is very probable that in our clinical studies we fail to recognize some cases and even in pathological studies it is difficult to be certain what constitutes a syphilitic lesion. Congenital lung syphilis is by no means uncommon in syphilitic infants. The pathological picture of pneumonia alba is characteristic. But these infants are usually born dead or live only a few days. In acquired syphilis gummata may occur anywhere in the lung but are more frequently found near the hilum or in the lower lobe. These occasionally may break down and form a cavity. The gummata may progress into dense fibrosis and by contracture give rise to bronchiectasis. Syphilis may also manifest itself by localized or diffuse fibrosis. This fibrosis may not be recognizable from fibrosis due to other causes.

The diagnosis can never be made with perfect assurance during life. We do not possess the means of final positive diagnosis as in tuberculosis by finding the specific organisms in the sputum. Undoubtedly the most frequent confusion and lack of recognition occurs in differentiating the cases showing diffuse fibrosis from cases of tuberculosis and pneumoconiosis. In studying such cases

repeatedly negative sputum examinations and lack of exposure to dust should suggest to us the possibility of syphilis. The diagnosis of lung syphilis rests upon presumption. We demonstrate a lung lesion and after determining the presence of syphilitic infection in the body and eliminating as far as possible other etiological causes we presume the lung lesion is syphilis. The diagnosis is built up by a history of syphilitic infection or the demonstration of syphilis in other organs; the positive Wassermann reaction; the demonstration of a lung lesion atypical of adult pulmonary tuberculosis with no tubercle bacilli in the sputum and finally prompt response to antiluetic treatment. But many pitfalls still beset our path in the diagnosis of lung syphilis. A positive blood Wassermann test does not positively mean that a lung lesion is due to syphilis. Tuberculosis, abscess, bronchiectasis, pneumoconiosis can all occur in the syphilitic. And all such cases can show considerable clinical improvement by treating their syphilitic infection. But the lung lesions do not melt away. In any atypical lung lesions with no tubercle bacilli in the sputum think of syphilis in order not to overlook a striking therapeutic success.

MYCOTIC INFECTION

Mycotic infection of the lung due to the higher fungi, such as actinomyces, blastomyces, streptothrix, monilia, coccidioides, sporotrichum, aspergillus, mucor, are perhaps more common than we suppose. They should always be thought of in any case of chronic lung disease where tuberculosis cannot be proved. They present no distinctive symptomatic, clinical or anatomic features. In their clinical course they most closely resemble pulmonary tuberculosis. The only certain method of diagnosis is by finding the specific fungus in the sputum or discharged from the lesions.

Blastomycosis is the most common of the pulmonary mycoses. The spores of the blastomyces may be inhaled directly into the lung or infection may be carried to the lung from skin lesions. The infection is spread throughout the body by the blood stream. The lesions closely resemble tuberculosis but there is more suppuration. At first there are many small abscesses; these may later develop into cavity. In the cases where the lung infection is blood-borne, the x-ray picture closely resembles that of miliary tuberculosis. The pleura and pericardium are frequently involved with formation of empyema.

Actinomycosis is produced either by inhalation directly into the lung or spread by aspiration from a neighboring focus of infection in the mouth or neck. The disease spreads to contiguous structures such as pleura, pericardium, chest wall, spine or diaphragm. Infection does not spread to the regional lymph nodes nor to other organs by the blood stream. It closely resembles chronic ulcerative pulmonary tuberculosis but cavity formation is rare. It is often unilateral and usually involves the lower lobe. Sinuses are often present in the chest wall.

Streptothricosis is a rare infection. It takes place by inhalation. The lesions in the lung are of the nature of bronchopneumonia, abscess, gangrene and bronchiectasis. Metastasis by the blood stream occurs.

Bronchomoniliasis is an infection due to a yeast of the genus Monilia. The clinical picture is not characteristic but resembles many of the other chronic lung infections. Castellani emphasizes that primary bronchomoniliasis must be distinguished from secondary bronchomoniliasis which occurs in tuberculosis and other chronic conditions. The mere presence of monilia in the sputum is not sufficient to establish a diagnosis. The yeast may live saprophytically in the bronchi.

TULAREMIA

Tularemia is being much more commonly recognized and diagnosed. In the accumulating reports of cases it is evident that lung lesions due to the specific organism are commonly found. In fact it is safe to state that pneumonia occurs in tularemia in no less than about twenty per cent of the cases. It is

primarily a bronchopneumonia with lobular type of involvement. The lobular patches of exudate may be widely distributed in both lungs. Resolution is slow and recurrent infections in new areas occur. The symptoms are less severe than those seen in ordinary pneumonia. The pulse is comparatively slow in relation to the fever. The leucocyte count is normal or relatively low. The x-ray pictures show scattered areas of bronchopneumonia. Confluence of the lobular pneumonia may lead to large areas of consolidation in which abscess and cavitation may be found as the result of secondary infection. Most of these cases of pneumonia occur in the typhoid type of tularemia. There is either minor cutaneous or regional lymphatic involvement, or commonly, none at all. In this type of tularemia the infection is generalized and blood-borne from the start. In tularemic sepsis miliary focal necrosis may occur in the lungs. Pleural effusions are not infrequent. When tularemia is not recognized in such cases as the cause of lung involvement, diagnosis of tuberculosis or acute bronchopneumonia may be erroneously made. To avoid this possible mistake we should think of tularemia in any atypical pneumonia with relatively low leucocyte count, slow pulse and slow evolution of the lung changes. The diagnosis can be determined by agglutination tests.

PULMONARY TUBERCULOSIS*

By K. M. JARRELL, M. D.
Beckley, West Virginia

VERY much like the safety movement in genesis, methods and enthusiasm, is the less developed industrial health movement. Its slogan is "Health For Every Man." Like the safety movement it wars on evils which the average employer has long contended were none of his business, but which having finally accepted, he is attacking with hard common sense and professional thoroughness.

There is no class, trade, profession or activity of men and women which does not have a possible physical evil accompanying it. A book has been written on the "Disorders of People of Fashion"; one might equally well be written on the "Disorders of Bankers and Brokers." Writers have their cramp and artists their colic. If classes with the means to control their conditions, and to secure the best advice on avoiding the evils incident to their work, still are so afflicted that they are the support of hundreds of "cures" as well as tens of thousands of physicians and nurses, masseurs and pharmacists, what can we expect of the millions in industries where they have no control over surroundings and no instruction as to the dangers of their occupations. These diseases which have made frightful havoc with national health come from dozens of different causes. They are the results of poisonous metals and gases, of inflaming dusts and germs, of air pressure and of strain.

The potter is in danger of lead poisoning, the matchmaker of "phossy jaw"; textile workers fear tuberculosis, washer-women eczema. The stone masons, the sugar refiners, and the candy makers all have skin diseases peculiar to their trades. Gardeners are in danger of poisoning from the seventy or more irritant plants they handle. Anthrax threatens those who work with animal products — whether they be sorters, butchers, shepherds or cattle salesmen.

There is a big range of tremors and palsies, of spasms and neuroses traceable to shop and factory conditions. Eye strains from improper lighting and from too fixed and too continuous attention, as well as injuries from

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dust and gases are general in many occupations. Our growing knowledge of the causes of many ailments which we have accepted as inevitable and the realization of the enormous influence these things have on unhappiness and on inefficiency have been a sharp spur to the efforts of all those who are interested in industry in any way. The intelligent employer is coming to a point in regard to occupational disease, very like that which he has toward safety. "Show me the disease and I will find a way to prevent its ravages." But just as safety is one-third prevention, and two-thirds education and organization, so in occupational disease education and organization are the biggest factors.

LEAD POISONING

Take the matter of lead poisoning of which we hear so much. After every mechanical precaution has been taken—the care of the operative still is the most important factor. His education and strict supervision are essential, and this is now being undertaken in many different industries.

The attempt to control occupational disease begins in the employment bureau of the modern industry by a thorough physical examination. Indeed in hiring people nowadays, it is a man's body which receives the first attention. "We are not hunting perfect physical specimens," Dr. Farnum, the medical supervisor of the Avery Company of Peoria, Illinois, says. "What we are trying to do is to ascertain whether the individual man's physical condition is compatible with the work he is going to do." Is the man in condition to resist the peculiar danger of the occupation? A physical examination ought to show this. Is the man strong enough to do the work? That is a matter not difficult to decide and its decision prevents many a poor fellow straining himself to the point of injury at too heavy tasks.

The modern employment bureaus know enough not to send a girl whose eyes are poor to a machine where the operation requires the strongest and steadiest sight. It does not put a man with a wooden leg to working a treadle which requires the leg muscles of a first baseman. It sends the girl to an oculist and often tells her to apply again when her trouble is corrected and not infrequently it finds something the man with a wooden leg can do.

There is no question but that the best interests of the labor force is served by a refusal to accept those who are unfit for a particular task. The relation of the health of the whole to that of the work is obvious. There is a close connection, too, between disease and accidents.

"We think it would be reprehensible," the management of the Commonwealth Steel Company said, "if we did not know that a man had only one eye and would therefore put him where he might be in danger of having his good eye knocked out. We should for his own good and that of his fellow workmen know that he is not subject to 'fits' or conditions that might let him fall into things or off of places. We feel that we should know that men who operate our twenty big overhead cranes are in physical and mental condition to handle properly big loads over other men's heads. We feel, too, that we have the right and that we owe it to their fellow workmen to reject men who have certain objectionable diseases."

MECHANICAL PRECAUTIONS

The man who is accepted as a good risk in a modern scientific shop, will find there all mechanical precautions that are known to minimize the trade danger. He will find the most important of all safeguards whatever the disease, good air, regular temperature, and proper sanitation. If in addition he receives an education in the precautions he ought to take, he will have as fair a chance to escape the menace of his trade as industry knows how to give.

The most important feature of his education will be the annual physical examination which is offered all employees in a thoroughly modern organization. In all occupations old employees are almost invariably found to be suffering from serious troubles which

neglected would soon incapacitate them. These troubles may be, too, of such a nature that the men are a menace to their fellows. There is an impression abroad that such discoveries lead to immediate discharge; that is, that the annual physical examination is really an annual weeding-out process which is intended simply to keep a vigorous force together. Undoubtedly the aim is to keep a vigorous force together. It should be, but I have never personally found an employer dismissing a diseased workman without giving him a chance for a cure or a change. Again and again I have known of cases where a serious condition, quite unsuspected by the victim, has been discovered and by promptly dealing with it has been entirely overcome.

Particular care and kindness is exercised where tuberculosis is discovered. All over the country employers are sending tubercular employees to tent colonies or hospitals where they can have the best care.

PULMONARY TUBERCULOSIS

At this point I shall comment for a few moments on pulmonary tuberculosis.

Tuberculosis is today the second greatest cause of death among our employed men; heart disease coming first. And yet Dr. Thomas Parran, Jr., Surgeon General of the United States Public Health Service, says, "Tuberculosis can be wiped out in our nation!"

How? That is the question that each one of us raises who is at all concerned for the welfare of his children, of wife, or of his fellow men. How can we get rid of this plague that knows no favorites, but strikes rich and poor, strong and frail alike?

A periodic physical examination is an excellent way to uncover trouble. And it is the tuberculin test which discloses actual infection. If there is a red spot appearing in two days after the injection, it indicates that the person had been infected. This is not necessarily a sign that the individual has tuberculosis, however; x-ray pictures are therefore made at this point to determine definitely whether tuberculosis is present.

Tuberculin testing is advised not only for those who are known to have been exposed to direct contact, but it is advised for all. Tuberculin tests of school children have disclosed that sometimes as high as forty per cent of those reacting positively have had no known contact.

LAW ENFORCEMENT NECESSARY

How essential it is then, not only to do the detecting of tuberculosis with such devices as the tuberculin test, the x-ray and the stethoscope, but also to emphasize the prevention side by enforcing some of the excellent community legislation we have been writing on our statute books for the last fifty years, and not without avail.

The battle against tuberculosis is being waged on every front—community precautionary measures, detection and cure. Dr. Parran's words can be made prophetic of a new day close at hand; but this is possible only with the coöperation of every American citizen, led by the physicians of the country. "Tuberculosis can be wiped out in our nation." And because it can be, we know it must be wiped out!

Dr. Griffith has recently shown that in England one per cent and in Scotland four per cent of adult human pulmonary tuberculosis is due to the bovine tubercle bacillus. Where the human is the carrier the detection is followed in the majority of cases by sanatorium treatment. This isolation in itself acts directly in reducing the amount of infection, but in addition the sanatorium has taken on itself new duties. The first is, not to discharge patients with a positive sputum until all available means, surgical and otherwise, for rendering them sputum-negative have been tried. The second is, to educate the patients so that even if they continue to be carriers after discharge they will dispose hygienically of their sputum. And finally the sanatorium has made it a part of its duty to examine as far as possible the family contacts. In this way early active cases are detected and submitted to treatment or suspect children are sent to preventoria.

The physician today is therefore expected not only to diagnose his active clinical cases early but to examine and skin-test all intimate contacts.

This increased reliance on the value of the tuberculin skin-test demands a more accurately standardized tuberculin than O. T., which repeatedly has been found to vary widely in its potency. Sponsored by the National Tuberculosis Association and based on the researches of Seibert and Long, there has recently appeared on the market a new tuberculin, P. P. D. (Purified Protein Derivative) which is a relatively pure chemical substance of the nature of a proteose and contains a skin-reacting fraction of tuberculin. The doses are graded by the actual weight of the chemical substance, and identical amounts may be duplicated at will. The preparation is made readily available for use in small lots in tablet form, and no serial dilution is necessary. If this product were universally used it would solve the question of tuberculin standardization.

In Europe many countries besides France are employing on a large scale prophylactic vaccination of children with B. C. G., an avirulent living tubercle bacillus developed by Calmette at the Pasteur Institute. America like England and Germany, has not yet widely employed this method. We are awaiting the verdict of carefully controlled experiments on a smaller scale carried on by trained observers in some of our larger cities.

CHANCES OF RECOVERY

If one does develop pulmonary tuberculosis, his chances of recovery are greatly enhanced in the modern sanatoria with the additional assistance of collapse therapy. In some states as high as 70 per cent of all sanatorium patients receive some form of collapse therapy. The results appear to be highly satisfactory. Recently the director of a large sanatorium in a personal communication stated that, whereas six years ago the mortality in his sanatorium was 25 per cent, today it is six per cent, largely attributable in his opinion to collapse therapy. Would that any method of treatment were as satisfactory in the nonpulmonary forms!

Having indicated in the foregoing the present trend in tuberculosis, one would like to indicate what the future trend should or will be. In the first place our efforts in the above direction should not be lessened, but increased. The physician will keep on educating the public to the point where individual coöperation in the search of contacts will be a routine if this is not made possible by state or municipal efforts. The same state of mind towards "respiratory cleanliness" as exists toward food and intestinal cleanliness should be fostered. Conditions of slum livelihood and unhealthful working conditions should not be tolerated.

OUR RECORD

We on the North American continent have a proud record of achievement in the fight against tuberculosis, for which we should be duly grateful to our national and state tuberculosis associations. They have not only educated the public, but notably assisted in various researches. A decrease in death rate from 195 per 100,000 in 1900 to 56 in 1933 is the actual count, and the saving in lives amounts to hundreds of thousands.

There are, however, some matters for concern. The first is that we have not trained all medical students sufficiently to diagnose incipient tuberculosis and to be capable of intelligently handling all the ramifications of the long treatment, including search for a source of infection and examination of contacts. Secondly, it does not appear that we have paid sufficient attention to the rehabilitation of the clinically cured, discharged sanatorium patient. It is interesting to note in this connection that the Antituberculosis Association in Florence, Italy, has recently recommended the establishment of postsanatorial colonies adjacent to the sanatorium where discharged patients may be prepared for their new working life under medical supervision. Whether our program should take the form of this Papworth model remains to be seen. It may be that the em-

ployer will find it possible to work out a scheme of taking back previous workers on a gradually increasing time schedule under medical care. And thirdly, can we not do more about those occupations in which the mortality from tuberculosis is disproportionately high?

PLANS FOR FUTURE TREATMENT

True it is that we have not yet developed a specific treatment for tuberculosis, but efforts along this line are being made, and will undoubtedly be continued. The task before us is herculean and to accomplish the desired end we should approach the future with the spirit of the man to whom the difficult thing is one which may take a little time to do; and the impossible, one which takes a little longer.

The Metropolitan Life Insurance Company has made especially elaborate arrangements for caring for those among its 19,000 employees who are tubercular. The sanatorium—built on the southern slope of Mount McGregor, New York, a stone's throw from the cottage where General Grant died—is one of the noblest of the company's many contributions to the cause of national health. It has aimed to make a modern sanatorium, one which should not only serve its employees, but should set the highest standards for such an institution and which should as time goes on serve as a great laboratory for developing better methods for fighting the plague. There has been a question raised as to the legal right of the company to devote money to such a purpose. It is a question often raised over this kind of work by corporations and stock companies. Before undertaking the work, a judgment was asked from the Appellate Division of the Supreme Court of New York, which returned as a principle the following:

"The duties of the employer to the employee have been enlarged in recent years, and are not merely that of the purchaser of the employee's time and service for money. The enlightened spirit of the age, based upon the experience of the past, has thrown upon the employer other duties, which involve a proper regard for the comfort, health, safety and well-being of the employee * * *. It is well within the corporate power to assume, as it has done, the care and treatment of such of its employees as are afflicted with tuberculosis. And unless it is shown to be wasteful of the company's money and unproductive of beneficial results, the practice may stand well within the scope of its business. The reasonable care of its employees, according to the enlightened sentiment of the age and community, is a duty resting upon it, and the proper discharge of that duty is merely transacting the business of the corporation."

I doubt if more care and truer sympathy have ever gone into an undertaking than into this sanatorium—and it is the more impressive because the company insists that they regard it simply as sound business. It is another evidence of the spread of the discovery that the highest humanity is the soundest business.

REASONS FOR REJECTIONS

An official investigation has been made by the versatile, enlightened and energetic Industrial Commission of the State of Ohio. Full reports of the results of the examination were not to be had, but in the case of 23,118 applicants of which reports existed, it was found that 1,040 had been rejected. The reasons for these rejections were interesting. At the head of the list stands impaired vision; hernia comes next; then organic diseases of the heart; tuberculosis and the social diseases did not prove to be nearly as general as popularly supposed.

Possibly the most interesting observation of the investigators was that these rejections for disease or poor physical condition were not final in several of the establishments. Men or women found unfit were frequently referred to a physician. In some cases a course of treatment was prescribed or an operation recommended. It was found that often if the applicant came back in good shape he was employed.

The report states that it found the following reasons given by employers for the ex-

aminations. They tally very well with my own observations:

1. To enable the employer to select a force physically fit for the work.

2. To determine the physical condition of workmen upon entering employment so that unjust claims for injuries may be avoided.

3. To adjust the employee to the work for which he is physically best suited.

4. To maintain the health of the employees by preventing the introduction of communicable diseases, by detecting physical diseases and defects in their incipiency, by advising and educating industrial workers to care for their physical well-being and to reduce the hazard arising from physical defects.

MINOR DEGENERATIVE DISEASES

It is not the occupational disease, nor is it tuberculosis or typhoid or troubles calling for operations which are the most serious problems in industrial life. It is the minor degenerative diseases—the impaired digestion, the thin blood, the poorly functioning kidney, the nervous rundown condition—ills which the victim does not realize but which if not checked will sap his strength, weaken his resistance to occupational disease and to epidemics and often hurry on some tendency to disease of which he knows nothing.

The preeminent service of the medical department is the education it gives in the care of the health. It is not a simple undertaking. In many bodies of labor, especially where it is organized, there is suspicion to be overcome. They have been told that it is in the interests of the directors, rather than in their interest that health examinations are made, any many of them have yet to understand that the two are inseparable. Nevertheless, I have never known of an industry where the work has been undertaken intelligently that the people were not its staunch defenders. They come sooner or later to look upon it as one of their rights and to demand its fullest service. In one factory where the employees have had the examination for some four years the only complaint has come to be that some examiners are not as thorough as others! In this particular case, the examination is voluntary. Perhaps 15 per cent refused to take it the first year; everybody takes it now, and as I said, insists upon it being thorough.

As for appreciation and coöperation when confidence in the service is established, it is hearty and fine. One company tells of a skilled workman who had left their plant for higher wages, returning in a few weeks. "My wife and I think," he explained, "that the care and attention that I get here is worth more than the difference in wages, so I am back on the old job."

Another workman in this factory who had been badly injured and carefully nursed was given his compensation check. "What kind of a fellow do you think I am, anyway?" he said indignantly. "Haven't you been looking after me for over a year when anything was the matter with me?"

The real difficulty is that common to all health work. Men and women are indifferent to hygiene, to personal habits until too late. "It never bothers me", "I feel all right", is the opposition in the factory medical department as it is everywhere, to attempts to persuade a man with certain diseases that he is in a dangerous condition. The Eastman Kodak Company tells of examining an employee with a blood pressure of 250, who when warned, declared he had never felt better in his life. In three months he was dead.

The health bulletins and pamphlets are practical features of education in many plants. The care of the body, the importance of a healthy digestion, and scores of topics are treated in so clear and personal a fashion that in the end they arrest the attention of the most careless.

IMPORTANCE OF EXAMINATIONS

In conclusion, I want to impress upon the major employers of labor, the importance of a thorough physical examination, including x-rays of the chest. Twenty or more years ago no one was said to have tuberculosis until fever, loss of weight, hemorrhage or some other symptoms were present, together with the finding of tubercle bacilli in the

sputum and râles heard throughout the chest by stethoscope. When the diagnosis, according to these criteria was made, 80 to 85 per cent of the patients had lost their last, if not their best chances for recovery, by reason of the extent of the disease; and then the majority had spread tubercle bacilli to their associates before the disease was known to exist.

Chronic pulmonary tuberculosis plays the largest rôle in perpetuating disease in a family or community. By present methods of diagnosis this disease can be detected long before it has broken down the tissues or tubercle bacilli are being discharged, through sputum, to the outside world. Inasmuch as the disease is so insidious in its onset that its host is quite unaware of its presence, it becomes obvious that satisfactory control of tuberculosis will never be accomplished until provision is made for adequate examination of the apparently healthy persons, as well as those who may be sick.

The question may be properly asked, what may we do to prevent and control pulmonary tuberculosis. I may briefly state that a great deal of assistance and education along this line can be brought about by the large employers of labor, requiring before employment a thorough physical examination, including an x-ray of the chest, of all applicants for a position.

CHILDREN SHOULD BE TESTED

So far as possible, every child up to 14 years of age should be tuberculin tested and the positive reactors should be x-rayed. In many cases, with the tuberculin test and x-ray, a fairly definite diagnosis can be made of early pulmonary tuberculosis. It is the policy of clinics, at the present time, to examine all contacts of positive reactors with a follow-up for reexamination every six months, for a period of three or four years.

It is well to remember that tuberculosis is not equally prevalent in all occupations. Surveys of the incidence of the disease in different occupations reveal that among professional men and executives the death rate shows a low figure of 28 to 100,000 population. The rate increases considerably throughout groups of workers and reaches the remarkably high figure of 184 to 100,000 among unskilled laborers. It would then appear that tuberculosis affects less often those better prepared to finance a period of illness, than among those groups less able to finance themselves and families during sickness.

It is an undisputable fact that people living in unsanitary homes and improperly nourished are more subject to pulmonary tuberculosis than those who live in sanitary homes and who are more properly nourished.

In a survey made in the city of Richmond in 1935, the death rate among the white people was 68.5 to 100,000 population as compared with 183.7 to 100,000 among the colored population.

RECORDS INDICATE PROGRESS

I recently had a talk with the superintendent of a large tuberculosis sanatorium near Boston, who stated that seven years ago, 78 per cent of the people admitted to his sanatorium were in the far advanced stage of pulmonary tuberculosis and due to the systematic examination of all suspects with a proper follow-up of those exposed to the disease, during the short period of six years his records show that at the present time only 44 per cent of those patients admitted are classified as far advanced.

It has been conclusively shown in various locations that when sufficient bed space for patients has been provided and all suspects thoroughly examined that there was a marked falling off of the mortality rate, due to the fact that contacts were broken and people who were disseminating tubercle bacilli to other people were isolated.

The true aim of the industrial medical department is to put employees into condition and keep them there. Restoration and prevention. The returns of all this to the employer are not speculative. They can be measured in days saved and product increased.

It is cheaper to prevent disease than to cure it. The soundness of this viewpoint has already been demonstrated.

PELVIC ABSCESS

By WILLIAM S. GARDNER, M. D.
Baltimore, Maryland

THE incidence of pelvic abscess in women is relatively high. They are practically always due to infections through the genital tract. Nearly all of them follow gonorrheal infections, puerperal infections, or infected miscarriages; the most prolific source being instrumentally induced abortions.

The usual symptoms are pelvic pain and fever. As a rule the more acute the condition the higher the fever and the more acute the pain. In cases of long standing the pain, when the patient is at rest, may be very slight and the temperature only a little elevated.

The diagnosis is made from the history of a recent labor, miscarriage or gonorrheal infection, followed by pain and a rise of temperature. These symptoms are associated with a pelvic mass behind or to one side of the uterus that is fixed in its position, that as a rule does not have a definite outline, that is rather firm on palpation, but does not have the stony hardness of a pedunculated fibroid. Among the few other conditions that might cause confusion in diagnosis are a small ovarian cyst or a ruptured extrauterine pregnancy, but in both of these the history and the findings on bimanual examination are so different that there is little excuse for confusing them with an abscess.

The drainage of pelvic abscesses is attempted in three different ways.

First. A large group of men who have had excellent training in abdominal surgery and have only a limited acquaintance with the pelvic route attempt to drain all pelvic abscesses through the abdominal wall, and then put the patient in bed flat on her back. They seem to forget that pus, water and other fluids will run down hill but not up hill.

If one of these operators were to go to the top of the four thousand foot ridge of which Jobes' Knob is one of the peaks, he would see on the top of the ridge, very near the knob, at the site of the old Williams farm house, a large spring. He would see the water from this spring running off down the mountain and would think nothing of it, but if he should see that stream of water reverse itself, and climb to the top of the knob and wrap itself around the flag pole on the summit, he would think it marvelous. And it would be, but that is exactly what he expects the pus in a pelvic abscess to do when he opens it at the top instead of at the bottom.

There is an occasional pelvic abscess that is found so high up and so close to one side that it can, and should be opened through the abdominal wall extraperitoneally. There are very few of that kind.

VAGINAL PUNCTURE

Second. This is the method of vaginal puncture. A long slightly curved, sharp pointed scissors is plunged through the vaginal wall into the abscess. The scissors are partly opened and withdrawn. A cigarette drain is put through the opening into the cavity. All very quickly done and very easily, but unfortunately all too often quite useless. The opening into the pus cavity is too small; the drain is too small and comes out too soon. The vaginal wall heals over before the abscess cavity is healed and the abscess forms again.

Third. This is a procedure to drain the abscess and keep it drained until it is healed. For any one who has a fairly well educated sense of touch the operation is not difficult.

Insert into the vagina a perineal retractor, expose the cervix and grasp it with a bullet forceps. Pull the cervix downward, keeping as close as possible to the pubes. Begin at the junction of the posterior cervical wall and the vagina and make an incision about two inches long in the median line of the posterior

wall of the vagina. The incision should go only through the thickness of the vaginal wall. Through this incision dissect with the finger in the direction of the previously palpated mass. Sometimes the dissection into the abscess cavity can be completed with the finger dissection. Frequently there is an indurated layer of tissue surrounding the cavity that can not be penetrated by the finger. In that case the protective layer can be broken through with a closed Kelly forceps or punctured with a closed pair of sharp pointed scissors. The forceps or scissors are opened and withdrawn. This opening should be enlarged by stretching until it will admit at least two fingers easily. In some instances more than one pus cavity is present. It is important that all be drained.

The pack or drain is made of a piece of gauze one yard square. When loosely rolled this makes a pack one yard long and of much larger calibre than the ordinary drain. This pack is pushed into the cavity until it is entirely filled. Any excess of pack is cut off just outside the vulva.

As soon as the patient has recovered from the anesthetic she is put in a high Fowler position. As early as possible it is best to get the patient into a comfortable high-backed chair. The chair is more efficient than the bed because only a few nurses grasp the idea that "a high Fowler position" means sitting straight up.

Forty-eight hours after its insertion the pack should be pulled down a few inches and cut off. This should be repeated every second day until the last of the pack is removed on about the eighth day. If the whole pack is removed too early the opening in the vaginal wall may heal over before the cavity is obliterated. A good general rule is that the larger the pus cavity the longer should be the time before the last of the pack is removed.

THE IMPORTANCE OF HOARSENESS AS AN EARLY SYMPTOM OF LARYNGEAL MALIGNANCY*

By FLETCHER D. WOODWARD, M. D.
University, Virginia

INTRINSIC cancer of the larynx is curable in the large majority of instances, and even extrinsic cancer is curable in many instances. Whenever a statement of this kind can be made in regard to cancer anywhere, it should create a sense of deep satisfaction in us, and at the same time an increased zeal in discovering them while they are still most amenable to treatment.

Approximately 95 per cent of laryngeal cancers are squamous cell epitheliomas; hence they grow slowly, metastasize late, and, most important of all, produce a very early symptom; namely, hoarseness, which should direct attention to the lesion while in the early stages, and since the only squamous epithelium in the larynx is on the upper border of the true cord, it can be readily seen by the use of the laryngeal mirror.

We have then all the factors necessary to cure approximately 100 per cent. Then why is it that 90 per cent of the people who have cancer of the larynx die from its ravages? The answer, I am reluctant to say, is due to the lack of interest and knowledge on the part of the physician himself, for we always get a history of one or several physicians having been consulted and the symptom was minimized, no laryngeal examination was done, nor was the patient referred for this examination, when the original physician was not equipped to do it himself. As a result of this attitude much valuable time is lost, and the average duration of this most important symptom of hoarseness was 10 months in the 33 patients seen during the past few years.

*Read before the Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, West Virginia, November 8, 1937.

We have studied 66 cases of tumor of the larynx and of this number 33 or 50 per cent were cancer, so when nearly half of the cases of persistent hoarseness are cancer, the importance of this symptom cannot be too strongly emphasized.

CANCER OF THE LARYNX

Cancer of the larynx is by no means a rare condition. Statistics show that approximately 6,000 deaths a year in this country are due to it and that approximately 18,000 persons are now suffering with it.

The reasons for our statement in regard to its curability are briefly as follows:

1. Hoarseness: a very early symptom.

2. Diagnosis is readily made by simple mirror examination.

3. Slow growth, late metastasis, remaining for a long time enclosed in a cartilagenous box with a meager lymphatic outlet.

4. When a growth is seen in the larynx, it is accessible for biopsy, and if it is carcinoma, its grade of malignancy is readily determined.

5. Early growth can be completely removed by simple laryngostomy and local excision, which leaves a good, normal speaking voice.

6. In more extensive cases complete laryngectomy is necessary but the artificial larynx furnishes a useful voice, and in some instances the patient can acquire a good buccal voice.

7. Avertin or tribromethanol rectal anesthesia has greatly aided the surgeon in this work, and since its introduction we have had no postoperative pulmonary complications.

8. In extrinsic cases the grading of the tumor has been most important, for Grade I is most amenable to surgery and Grade IV most radiosensitive, in Grades II and III the best method is selected according to each case.

9. The use of the electrothermic current is most helpful in certain cases.

10. Radon seeds, which can be implanted and left in situ, furnish another most important weapon.

11. Probably the most important method of treatment of these extrinsic cases is the fractional dose method of Coutard using the Röentgen ray, which we have employed in many of these cases with most encouraging results.

12. The combination of several of these methods of treatment is at times necessary.

EXPERIENCE WITH 33 CASES

Considering all the above facts, what has been our experience with these 33 cases?

1. Eleven cases were not treated either because of the advanced stage of the lesion, or other complicating diseases, or because they either refused treatment or desired to be treated elsewhere.

2. Only three were seen early enough to warrant laryngostomy and local removal. They are all living and apparently well.

3. Eight were intrinsic in character but too far advanced for local removal, so somplete laryngectomy was done. Of this number one is dead, but not from cancer. He had a bundle branch heart block with a very large heart, myocardial degeneration and pulmonary edema. However, at his and his family's request, a total laryngectomy was done and his progress was uneventful until the eighth day, when a partial tracheal obstruction threw too much of a load on the heart and death soon followed. The remaining seven are living and apparently well. One has passed the five year limit, one has gone four years, and the others are in the past three years.

4. Eleven cases were extrinsic when first seen, and up until four years ago would not have been treated. Among this group, five have died of the disease, six are still living, two are apparently well after four and one-half and three and one-half years respectively. The other four are much too recent to hazard a guess as to their prognosis.

Among these 11 cases, some were treated by x-ray alone, some by laryngectomy plus x-ray, some by electrosurgical removal, radon and x-ray. Each case is a law unto itself, and the best method of treatment must be selected in each case.

So to date our mortality in this group is

only 45 per cent, whereas five years ago it would have been approximately 100 per cent in a similar length of time.

Therefore, when a person past 40 years of age presents himself with a persistent hoarseness, please see that a proper diagnosis is made, so that he may come within the first group rather than the last.

ROENTGEN RAY TREATMENT OF INFLAMMATORY LESIONS

By V. L. PETERSON, M. D.
Charleston, West Virginia

THE röentgen ray is a valuable aid in the treatment of many chronic and acute infections of the body. It is the purpose of this paper to emphasize such use in the treatment of the acute infections, in which it should be the method of choice aided by such other treatment as is indicated.

The general principles followed in the treatment of any benign lesion should be observed. The dosage need not be large. There is evidence that the smaller doses at proper intervals will often yield better results than a large single exposure. It is seldom necessary to produce an erythema of the skin in treating these lesions. Caution must be used in giving treatments following the application of irritants to the skin, such as tincture of iodine, or following maceration of the skin secondary to hot applications to the area. Ointments previously applied should first be removed since they may produce an increased sensitivity of the skin to the röentgen ray, as well as secondary rays that will increase the calculated dosage. If an ointment is indicated following the treatment a mild nonirritating substance such as boric acid or a nupercaine ointment should be used, and in a few instances a mild mercurial ointment is of advantage.

The action of small therapeutic doses of radiation on various tissues has been studied by a great many pathologists. Leukocytes, particularly lymphocytes, are destroyed by very small doses. Whartin found a rapid destruction of lymphocytes within a few minutes after treatment. There are certain changes of the other cellular elements, but where small doses are used there is not enough definite change for this to be accurately demonstrated. Desjardins believes the beneficial result is secondary to the leukocytic destruction with the liberation of their antibodies. As a rule, the more marked the leukocytic infiltration in the tissues, the quicker and more marked is the response to irradiation.

Clinically the effect of radiation is somewhat different in the different types of infections. This also varies widely according to the stage of the infection. The best result will occur in those lesions treated early; however, a lesion may be aided even though treated late. The response is somewhat better in the streptococcic infections.

I have treated several hundred of these infections with varying technique, and have had good results in most cases. As a rule 150 to 300 röentgen units are given at the initial treatment, with variation of the voltage and filter used depending upon the type of lesion, its location and extent. The second treatment, if necessary, is given twenty-four hours later; additional treatments as indicated, with a small dose for succeeding treatments.

Erysipelas is considered as an emergency condition and is treated with superficial rays without a filter. The lesion as well as a local area about its margin is treated. In an adult 300 röentgen units are given; children, as a rule, are given less. This dose will seldom need repetition.

Gas bacillus infections belong in this same class of emergency infections. The work of Kelly has put the treatment of this condition with röentgen rays on a rational basis.

The area is treated with a beam from each of two or three angles and with the use of a higher voltage with a filtered ray. The treatment is repeated in twelve to twenty-four hours as is indicated. I have treated four cases. One patient died a few hours following therapy. He was in shock on admission to the hospital with a leg injury. The other cases recovered. Serum was used in each instance in addition to the x-ray.

Infections about the face, scalp and hands are often serious; hence, these are considered emergency cases and are treated at the earliest moment possible. The infections of the scalp may require the temporary removal of the hair, although the dose need not be large enough to produce any permanent injury to the hair. Carbuncles and furuncles can often be aborted if treated early. If seen late, the condition can frequently be greatly aided by irradiation with only minor incision and drainage required. The chronic furunculosis found in regions such as the axilla can often be cleared in from ten days to two weeks. The initial dose is usually large enough to produce a temporary removal of the hair. Small additional doses are given as soon as a new furuncle makes its appearance. Infections about the finger nails that tend to develop into true paronychiae respond readily to one or more small treatments.

The acute adenitis following tonsil or tooth infections, respond readily. The ray is usually filtered with four mm. aluminum or copper, with the beam directed into the area of the primary infection. In the cases of tonsillitis this will improve the primary lesion. The tonsils may later be removed as is indicated.

Infections in the floor of the mouth as well as of the throat may be treated, caution being used since there is an immediate swelling of the tissue following the treatment. The added swelling may obstruct breathing, thereby producing the need for an emergency tracheotomy. Small doses repeated more frequently will overcome this hazard. The treatment is at times life saving. Lesions of the mastoid should be treated with caution, a small dose being tried at first and if there is evidence of some benefit a larger dose being given at the second treatment. The radiotherapist should keep in mind that once an abscess has developed it should be treated by surgical drainage.

Acute as well as chronic infections of the salivary glands respond readily to irradiation. It may be advisable to give the patient cracked ice to keep the mouth moist, thereby aiding in the prevention of added infection. This is especially true of postoperative parotitis. There is as a rule an increase in the pain following the treatment which lasts about four to eight hours. This is often followed by a complete relief of pain as the lesion starts to improve. If the lesion has started to break down, as in the case of carbuncles, the drainage will be more free with less time required for healing. Glandular infections at times become firm, giving the impression of a board-like mass, with little change in their consistency over several days or weeks. I have had three such cases; in each instance the process cleared without requiring drainage. Caution must be used against continuing the treatment to a point of injuring the skin. I prefer to use dry heat or ice bags as indicated rather than moist heat, since this tends to macerate the skin beyond a rapid repair. If the lesion is to be kept moist to permit drainage a small amount of vaseline may be applied or a local moist cloth placed over the center of the lesion.

SUMMARY

The radiologist has a method of therapy which has proved, both experimentally and clinically, to be of great value in a number of infections. This method should be used more often. The radiologist must be conservative and accurate in his statements if he is to obtain the confidence of the general profession, who know little or nothing of the value of the röentgen ray in the treatment of infections. I wish to emphasize the importance of using a known quantity of röentgen ray, which should not, and need not exceed the skin tolerance.

310 Medical Arts Bldg.

PHYSIOTHERAPY—ITS GROWTH AND PLACE IN PRACTICE*

By CHARLES M. BRAY, M. D., F. A. C. P.
Morgantown, West Virginia

In discussing a subject whose growth has been as phenomenal as that of physiotherapy I can hope only to give you a meager background and bare outline upon which you may place the wealth of clinical material which the investigator is able to find within the medical literature of the past very few years.

The term physiotherapy means, as the word implies, treatment by physical agencies. Physics and biochemistry largely form the groundwork upon which the study is based and to the workers in these fields the credit for the rapid growth is due.

FATHER OF PHYSIOTHERAPY

Historically William Gilbert, favorite physician to Queen Elizabeth, of England, may well be called the Father of Physiotherapy. He published in 1600, "*De Magnete*", in which he separated magnetism and electricity as well as reclaiming electricity from superstition. He received as a reward the presidency of the Royal College of Physicians. Kratzenstein of Germany, 1744, was the first to apply electricity to the human body for physiological effects and general interest in therapeutic electricity began in the middle of the eighteenth century. A little later our own Benjamin Franklin used it for the physicians among his friends in Philadelphia. Marat, the French Revolutionary leader, a physician, advocated that dosage be determined for electricity as that of drugs. Duchenne, Faraday and Weir Mitchell are prominent names in the work.

The formation of the American Electrotherapeutic Association in 1891 was a prime factor in the development of the study in America. Progress continued throughout the world through the discoveries of Tesla, Oudin, Galvani and Volta. In 1896 D'Arsonval demonstrated the coagulation of protein by a high frequency current. In 1907 Nagelschmidt coined the term diathermy from the treatment of arthritis by the same current.

During the next ten years progress continued rather slowly through Wyeth, of New York, and Clark, of Philadelphia, who pioneered electric surgery; Harvey Kellogg, Battle Creek, used carbon arc and visible light for treatment, although as far back as Galen we find sun baths recommended; x-ray and radium show the names of Röentgen, Curie and Coolidge.

The World War gave physiotherapy a tremendous impetus and since then its growth has been phenomenal. As an example of this the program of the sixteenth annual convention of the American College of Physical Therapy, held in Cincinnati, September, 1937, showed essayists representing twenty-three medical colleges, thirty-one major hospitals and three foreign nations.

One of the most unfortunate obstacles in the development of physical medicine was the adoption of some of the modalities by the irregular practitioners. Their absurd claims and extravagant promises caused many physicians to regard the study with distrust, and, in many cases set up a reaction of violent opposition.

USE OF PHYSIOTHERAPY

The position of physiotherapy in practice is that of a third leg. It forms with medicine and surgery a tripod and may be used alone or in conjunction with the others. Improved results are often obtained by combining either the different modalities of physiotherapy or combining the principles of the older forms of therapy with the modalities of the new.

*Read before the Monongalia County Medical Society, Morgantown, West Virginia, February 1, 1938.

For clearness of discussion I have attempted to classify the different procedures into loose groups as follows:

HEAT

(A) Heat. Heat is probably the oldest therapeutic measure known. For clinical purposes there are the following types: 1. Conductive, as a heated object applied to the surface—the hot water bottle. 2. Convective, as waves thrown from a heated source against the body—a stove or infra red. 3. Conversive —or diathermy. Diathermy literally means, "heating through." The electrons are thrown through the tissues at a very rapid rate and the heating is due to the resistance of the cells themselves—the more dense the cells the greater the heat produced. The clinical effect was formerly believed to be due to the increased blood supply to the part. Now, however, there is some evidence for an additional reaction, probably of a chemical nature. Kinds of diathermy: (a) Medical. Here the effect is constructive and larger plates are used. (b) Surgical in which the aim is destructive and is further divided into (1) fulguration; (b) coagulation; according to the extent of destruction desired.

Infra red will be discussed in another group.

Radiothermy: The waves here are very much shorter than in conventional diathermy, being three to thirty meters as compared to three hundred to four hundred meters in length. The frequency is also much greater as ten to fifteen million oscillations per second compared to one to three million per second. The action of radiothermy is yet debatable. Some claim a selective cellular action while others think there is only a physiologic heat. The technique differs from ordinary diathermy in that the electrodes are encased in rubber and the high frequency does not go through the part treated. Radiothermy probably gives better results where pus is forming, contrary to long wave diathermy. In all probability one type will not replace the other.

Fever treatments are not standardized either as to technique or results. They are a hospital procedure and must be closely watched.

(B) Rays. The members of this group are found in the spectrum and are produced artificially by means of lamps. The length of the rays are the important factors—the various lengths bringing about the different therapeutic effects. In order to group these rays, a unit of measurement has been adopted—the Angstrom Unit, which is one ten millionth of a millimeter long.

Visible Light: Composed of red, orange, yellow, green, blue, indigo and violet. Visible light lies between thirty-nine hundred and seventy-seven hundred angstrom units. Convective heat and phototherapy are supplied by this group.

ULTRA VIOLET

Ultra Violet: These follow violet at thirty-nine hundred and may be utilized to about eighteen hundred and sixty angstroms, beyond which they are probably not available for treatment.

The following actions of ultra violet have been worked out to date:

(a) The formation of vitamin D by the action of ultra violet upon ergosterol, an impurity in cholesterol.

(b) Increases iron, calcium, iodine, phosphorus, hemaglobin and red blood cells.

(c) Decreases sugar in the blood by storing more as glycogen in liver and muscle. Short duration.

(d) A superficial bactericidal action.

The actual penetration of this ray is slight.

X-ray: These rays vary from 12 to .5 angstroms, although longer, softer ones from eight to 200 angstroms are known.

Radium: The Gamma rays are from .07 to 3.5 angstroms. Both x-ray and radium are destructive in action. The shorter the ray the more destructive the action.

Infra red: Following red in the spectrum we find infra red, which measures from 7,700 to 500,000 angstroms, usable for treatment. Beyond this the rays are at present not obtained. In action these rays are convective

heat dilating the capillaries and bringing more blood and natural protective forces to the part. Any dark metal heated to a red heat will give off infra red rays.

(C) Waves: The Sinusoidal Wave. This modality is named from the shape of the current—that of a sine; it has positive and negative poles and each wave forms a complete cycle. It may be formed with both a galvanic or an alternating current. There are many modifications of this. In action the sinusoidal wave is primarily an exercising one and is used with muscle or nerve. Smooth muscle is no contraindication and many nice results are obtained in treatment of the abdominal organs.

Galvanism: A direct current depending upon polarity for its effect, and its action upon tissues is chemical. Many drugs can be broken up by the current and the acid or alkaline ions carried into the tissues, depending upon the pole used. This process, called ionization, forms the basis for ionophoresis used in hay fever and hypertrophic nasal conditions.

(D) Colonic Therapy: The mechanism consists of a system of containers and valves through which fluids may be entered and withdrawn from the entire colon. There results the mechanical cleansing of the colon and the unchoking of the lymphatics in the liver and digestive organs. These treatments may be used as a preliminary to others or alone.

THE CUTTING CURRENT

(E) The Cutting Current: In many places this current is replacing the scalpel. There are several advantages, especially in cancer work. The lymphatics, capillaries and even small vessels are sealed off; healing is by first intention and the resulting scar is often thinner and more pliable. A new gall-bladder removal has been perfected by Dr. Max Thorek, Chicago, in which this and surgical diathermy alone are used. To date there is a much reduced mortality as compared to the older methods.

Physiotherapy has many other modalities which I have failed to mention, mainly from a fear of using more time than you have allowed me. However, I wish to leave with you the impression that the study has a scientific basis; that much hard study is necessary to master the proper techniques; that much expensive equipment and office floor space are needed; and, above all, that a man may engage in its practice and still be an ethical and conscientious physician.

LAUGHTER

Mirth is to the human body as sunshine is to vegetation, Dr. S. A. Shoemaker exclaims in his article entitled "Laughter" in the April issue of *Hygeia*.

If we would have life abundant and flowing over, we need a copious supply of oxygen, the author declares, and this can be secured most easily through laughter. At the same time, this deeper ozygenization of the blood is secured without the irksomeness of conscious effort that accompanies exercise taken up for its own sake.

Thus through laughter one can vitalize one's blood while reclining on an overstuffed couch when not able to engage in active sports in the gymnasium.

Laughter is a source of therapy for the neurotic, irregular heart. Patients with this affliction are afraid to laugh lest their heart will stop altogether; whereas experiments have proved that a hearty laugh repeated at proper intervals has relieved this trouble. The heart is deeply under the influence of the emotions, and the free outburst of laughter combined with its mechanical action produces a salutary effect on that organ.

Laughter is a good exercise for the digestive organs. They are definitely moved to increased activity by the shaking and massage they get from the abdominal muscles during laughter.

The ideas and situations that make up laugh are classified as wit and humor. Wit may be kindly, or neutral, or it may carry a sting or sarcasm. It is the shock of pleasant surprise from meeting unexpected difference between things that are alike; or it occurs as the result of utterly incongruous things combined in the expression of one idea.

Laughter is a healer not only of the body but of the mind. It is the language of peace, sympathy and good will. It is the fragrance of life that yields health and friends, and increases your bank account.

POISONING BY ANILINE CONTAINED IN SHOE DYE

(Report of a Case)

By JAMES L. WADE, A. B., M. D.
Parkersburg, West Virginia

THIS case is being reported because of the outstanding features of striking cyanosis and remarkable recovery within a comparatively short space of time.

The following case came under my observation while at the Pennsylvania Hospital, Eighth and Spruce Streets, Philadelphia, Pennsylvania. A white male, age 22, was brought into the receiving ward by the police, having been picked up, seemingly unconscious, in the subway. At this time the most striking feature was a steel-grey cyanosis of the face, lips, ears, tongue, and finger nails. The patient was conscious, ambulatory, and his complaints of moderate weakness, dryness of throat, slight palpitation of heart, and frontal headache were strikingly incongruous with the deathlike, grayish hue of the facies.

HISTORY OF PRESENT ILLNESS

On day of admission the patient arose at 9:00 a. m., felt very well, and ate his usual breakfast, after which he dyed his shoes, using one and one-half bottles of a current commercial preparation. The shoes were put in the window to dry while patient took a bath, put on clean socks, and redonned his shoes, which he noted seemed somewhat damp in the seams. After a bus ride of about two hours, the patient walked two squares, when he noticed that his feet felt "funny", burning and tingling. This discomfort disappeared within ten minutes. After approximately one hour patient returned to the city on a bus. During the ride he noted a strong odor of gasoline and had some headache. After arrival in the city he walked a square to the subway when he noted that his hands were numb and "looked grayish." After boarding the subway train vertigo appeared, patient almost lost consciousness, but was dimly aware of his surroundings. The patient's appearance alarmed his fellow passengers so much that he was escorted to the patrol wagon and immediately brought to the hospital.

In the past history there are two attacks of unconsciousness following accidents; no respiratory symptoms, moderate dyspnea on severe exertion. Patient was an athlete and active at all times. There was no history of taking any drugs such as aspirin, bromoseltzer, acetanelid, etc., and no use of silver preparations. Moderate use of tobacco and no alcohol. Patient worked in a paper mill as a "cutter." Stated there was a "lot of dust" but did not handle chemicals.

EXAMINATION

On admission, the patient was comfortable, conscious, complaining of no pain, but some slight weakness. There was no vomiting or nausea, no dyspnea, slight palpitation, no tinnitus aurium. The skin was most remarkable, being almost a slate grey in color; the lips, tongue, mucous membrane of the mouth, the entire ears, and the finger nails were of a bluish cyanotic hue. Sunburned areas on chest and arms also stood out with a striking bluish tinge. There was no dermographia, but wherever the skin was touched there was a blanching followed by hyperemia. There was a peculiar "heavy" odor to the breath but this was not distinctive. Respirations were rather deep but not accelerated. The eyes showed no muscular weakness or palsy. The conjunctival sacks were bluish in color. There was no jaundice. The pupils were equal and reacted promptly to light and accommodation. Eye grounds were negative. Ears, nose, neck, and chest were not remarkable. The cardiovascular examination showed an irregularity of the rate and rhythm, a suggestion of a

Corrigan pulse, no capillary pulse demonstrated. There was a definite impulse over the brachial and femoral vessels. The blood pressure in both arms was 120 mm. of mercury systolic, and 68 diastolic. The heart was not enlarged; there was no thrill or shock. The heart sounds were slightly irregular with a systolic murmur at the mitral area. No other murmurs were elicited. The abdomen was negative except for a marked pulsation of the abdominal aorta. Extremities showed a cyanosis of the finger nails and toes. The feet showed a bluish-black discoloration which could not be removed with alcohol or ether. The reflexes were hyperactive throughout with a suggestion of a positive Babinski sign on the left.

DIAGNOSIS

In view of the suggestive history, poisoning by aniline dye was diagnosed and stimulation by caffeine sodium benzoate hyperdermically, oxygen and carbon dioxide inhalation were given with improvement in color and comfort. Fluids were freely administered, and seven hours after admission the patient was sleeping comfortably, the peculiar color of the skin was still present, temperature 98.6, pulse 90, respirations 18. At 8:00 a. m. the following morning the appearance of the patient was greatly changed in that the grayish color of the skin had disappeared and only a trace of the cyanosis of the lips, tongue and finger nails remained. There were no complaints. At 1:00 p. m. the skin was slightly bluish, the conjunctival were injected and had a slightly icteroid tint. Very slight cyanosis of the nails with a marked secondary pallor or pressure, was noted.

The laboratory studies were as follows: Blood count on admission 15.8 gms. hemoglobin, RBC 5,410,000, WBC 15,100, polymorphonuclears 79, lymphocytes 20, monocytes 1. Later blood counts showed progressive fall in white blood cells to normal with no change in the hemoglobin or red blood cells. Wassermann and Kahn tests were negative. Blood taken on admission showed sugar 79 mgms., total pigment 17.6 mgs. per 100 c.c. Hemoglobin calculated from oxygen capacity 15.2 mgs., carbon dioxide 53.1 vol. pct., oxygen capacity 20.4 vol. pct. Later carbon dioxide combining power of 53.7 vol. pct. and the blood urea nitrogen was 12.5. The urine was entirely negative throughout with variations in specific gravity from 1.008 to 1.025.

Patient was discharged two days later with no complaints and no residual physical signs. The cyanosis had completely disappeared and the man felt perfectly well. He was instructed to return to the hospital at weekly intervals for blood counts in case of developing secondary anemia. This was done for six weeks with no marked change in either hemoglobin or red blood cells.

DISCUSSION

The diagnosis of cyanosis often offers great difficulties. In this case we considered drug ingestion, such as acetanilid or other coal tar products; congenital cardiovascular disease; poisoning by inhalation, such as chronic carbon monoxide poisoning; argyria, and chronic pulmonary disease. There are certain other rare conditions; namely, anthracosis nigricans, hemachromatosis, and Addisonian pigmentation, which might possibly offer diagnostic problems.

The history, physical findings, and laboratory work, plus the very short course of the illness, suffice to make the diagnosis tenable. It is possible that many cases of slighter degree may go unnoticed or undiagnosed because they are never seen by a physician.

DIFFERENT EFFECTS OF EXERCISE

While exercises of speed cause marked acceleration of the heart, exercises of strength have no material effect on the heart rate, Dr. Dudley B. Reed reveals in his article entitled "Exercise" appearing in the April issue of *Hygeia*.

Exercises of endurance increases the heart rate more than those of strength but less than those of speed. The increase in rate comes on rapidly and remains for some time after the exercise is stopped.

VOLVULUS OF THE SIGMOID PRODUCING COMPLETE INTESTINAL OBSTRUCTION ASSOCIATED WITH A SEVEN AND ONE-HALF MONTHS' PREGNANCY

(Report of a Case)

By WAYNE BRONAUGH, M. D. and W. R. YEAGER, M. D.
Parkersburg, West Virginia

A WHITE female, age 30, the mother of three living full-term babies and seven and one-half months pregnant was admitted to St. Joseph Hospital at 3:00 a. m., Wednesday, September 15, 1937, because of tremendous abdominal distention associated with continuous abdominal cramps and nausea. She was dehydrated and exhausted.

PAST HISTORY

The past history was irrevelent save for an appendectomy for acute appendicitis in 1927. She was the mother of three normal full-term babies, the youngest three years old. All these pregnancies and confinements were uneventful. There was no history of importance concerning the gastrointestinal tract.

This illness began Saturday morning September 11, about 8:00 a. m., being ushered in by very mild generalized abdominal cramping. About noon there was a localized tenderness in the lower left quadrant which extended into the back and the cramps were severe. In the afternoon she took two N. R. tablets and the remainder of Saturday night she was somewhat relieved. Sunday the cramps returned, persisting to a moderate degree throughout the day and that night she took an ounce of castor oil, which increased her abdominal pain considerably. Monday she sought relief without avail, by taking enemas at hourly intervals. Tuesday hot stupes were applied and three enemas were administered in an effort to relieve an abdomen that was markedly distended. This failing she resorted to a large dose of Epsom salts and from then on her abdominal pain became much more severe and distention increased. Her last bowel movement was on Thursday, September 9.

Upon admission to the hospital abdominal cramping, tremendous distention, and nausea without vomiting were present. She was immediately given an enema which gave no results and 1000 c.c. of 10 per cent glucose was administered by vein.

At 10:00 a. m. the patient was seen in consultation by one of us (W. B.) at which time the diagnosis of complete intestinal obstruction, probably at the sigmoid, was concurred and immediate surgery advised. The abdomen was tremendously distended and coils of intestine showing weak peristalsis could be seen through the thinned abdominal wall. A finger in the rectum revealed the fetal head low, no masses, no dilatation of the cervix and no rectal obstruction. The pulse rate was 92, the temperature 98.6 degrees, the blood pressure 110 systolic, 70 diastolic. The laboratory findings were within normal range.

The patient was given 1000 c.c. of 10 per cent glucose by vein and prepared for surgery.

CLASSICAL SECTION

Under spinal anesthesia, 20 mgs. of pantocaine, the abdomen was opened through a low midline incision extending from umbilicus to symphysis. It was not possible to do a low cervical section because there had been no labor to elevate and thin the lower uterine segment, so a classical section was performed and a living five pound male infant delivered. After closure of the uterus an exploration of the abdomen revealed a large volvulus of the sigmoid. The loop involved in the volvulus as well as all the colon above the volvulus was markedly distended. The walls were hypertrophied and stiff with edema. The circulation of the twisted loop was markedly impaired, its color of a cyanotic hue, its

diameter about 10 inches, its length about three feet. The diameter of the colon from the twist to the ileocecal valve was about seven inches.

This markedly stiffened, edematous, distended colon was so tightly impacted in the upper abdomen that it was not possible to deliver and untwist it until the intraluminal pressure was relieved, so accordingly a cecostomy was done by using a size 28 F. Pezzer catheter which was brought out of the abdomen through a stab incision over the crest of the ileum.

MESENTERIC INFARCTS FOUND

As soon as the pressure in the colon above the twist was decreased the volvulus was delivered from the abdomen. It was then released by turning the loop through three semicircles clockwise. There were several mesenteric infarcts the size of ten-cent pieces near the base of the mesentery but the circulation of the involved loop was good and it lost the cyanotic hue at once.

An assistant now dilated the sphincter and passed a large colon tube which was guided into the large loop of gut and the distention of the entire colon was thereby relieved. The redundant sigmoid was then returned to the abdomen, a toilet inspection made, and the abdomen closed without drainage. The patient left the table in fair condition.

At 4:00 p. m. she was given 500 c.c. of blood followed by 500 c.c. of 10 per cent glucose. The following two days parenteral fluids were administered as indicated and because of a good functioning cecostomy and an indwelling colon tube distention was not disturbing.

Full diet was prescribed on the fourth postoperative day and the cecostomy tube removed on the eighth postoperative day, at which time the bowel movements were normal. The cecal drainage ceased immediately. The patient was allowed out of bed on the twelfth postoperative day and discharged in excellent condition on the fourteenth postoperative day.

DISCUSSION

Volvulus may be simple or compound, simple when a coil of intestine is twisted around its mesenteric axis, compound when two coils are mutually intertwined. The sigmoid is most commonly involved, the cecum next, and lastly the ileum and jejunum. The cause in the majority of cases is some anatomical abnormality—a mesosigmoid of undue length with a narrow base associated with a long redundant bowel; a very mobile-cecum and ascending colon, due to lack of proper fusion to the back, with a mesentery continuous with the mesentery of the ileum. The coil involved may become enormously distended and in case of the sigmoid or cecum may fill the entire abdomen. The gut may be so distended and stiff with edema that delivery from the abdomen and untwisting may be a physical impossibility until distention is relieved, and when untwisting is accomplished without relieving the distention, it may immediately spring back into the former position. If uncoiling can be expedited without relieving the distention then the distention may be relieved by passage of a large colon tube through the rectum, otherwise distention will have to be relieved by opening the gut.

If the disease has progressed to the stage of gangrene a resection will be required. This will best be done by the obstructive method. The vitality of the loop involved may be questionable. If so, a Paul's tube or a large Pezzar catheter may be inserted into the gut or the loop may be placed partially extraperitoneal with a Penrose drain down to it.

Volvulus has a great tendency to recur. An attempt at the time of operation should be made to prevent this and the procedure most commonly used is to suture the loop to the side of the abdominal wall and pelvis.

If for some reason this appears impracticable and later there is a recurrence then at the second operation, which should be done early, a resection of the loop with anastomosis is the procedure of choice.

PARTIAL ATELECTASIS OF THE LUNG

(Report of Two Cases)

By I. A. BIGGER, M. D., G. D. VERMILYA, M. D. and P. P. VINSON, M. D.
Richmond, Virginia

ATELECTASIS of the lung is usually the result of an obstructing lesion in a bronchus. Ordinarily obstruction is gradual in onset and does not give rise to the dramatic symptoms which are encountered in so-called massive atelectasis of the lung. The etiology of this latter condition is not known definitely, but it occurs frequently after operations on the thorax or abdomen. Atelectasis of one lobe of the lung without an obstructing lesion is seldom observed, and it is for this reason that the following cases are being reported.

Case 1. The patient, a white man, forty years of age, was referred to Memorial Hospital, February 25, 1937, by Dr. E. L. Alexander of Newport News, Virginia. In October, 1936, the patient had had a cold which was followed by cough, foul purulent sputum, and loss of appetite and weight. A diagnosis had been made of abscess involving the upper lobe of the left lung.

General physical examination revealed considerable emaciation, foul breath, and paleness of the skin and mucous membrane. Examination of the thorax showed limited expansion of the left side of the chest. The percussion note was dull over the upper lobe of the left lung, and breath sounds were diminished. A few scattered râles were also noted over the upper lobe of the left lung.

The laboratory tests revealed nothing significant other than a moderate degree of secondary anemia. Röentgenoscopic examination of the thorax disclosed density, eight cm. in size, in the upper portion of the left thorax between the second and fifth ribs. There was a cavity, two cm. in diameter, with a fluid level at the third rib near the midaxillary line.

On March 1, 1937, under local anesthesia the third and fourth ribs were resected in the midaxillary line. An abscess was found, a portion of the wall was excised, and the cavity was packed with gauze. Four days following operation the patient became dyspneic and cyanotic, and examination revealed evidence of atelectasis of the lower lobe of the left lung with shifting of the mediastinum to the left side (Fig. 1).

FIG. 1. Atelectasis of lower lobe of left lung following surgical drainage of abscess of upper lobe of left lung.

Bronchoscopic examination was performed and considerable pus was aspirated from the bronchi of the lower lobe of the left lung, resulting in marked clinical improvement. The mediastinum returned to normal, and the breath sounds over the lower lobe of the left lung became detectable. Two days later röentgenoscopic examination of the thorax re-

vealed marked clearing of the lung (Fig. 2).

The patient was discharged from the hospital March 23, 1937, at which time his general physical condition was greatly improved. When he was examined six months later, he was completely restored to health.

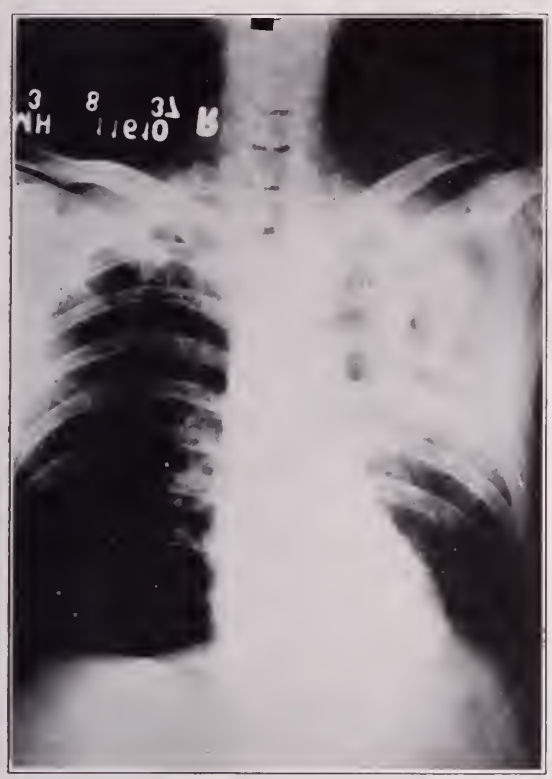

FIG. II. Note marked improvement with aeration of lower lobe of left lung following bronchoscopic aspiration.

Case 2. This patient, a white man, aged twenty-seven years, was admitted to Memorial Hospital, February 7, 1937. Twenty minutes previous to admission he had fallen approximately fifty feet from a railroad bridge. He had not been unconscious and had not had nausea or vomiting. He was very dyspneic and had severe pain in the right thorax, the discomfort being intensified by respiration.

Examination revealed reduced expansion of the right side of the thorax. The percussion note over the right side was hyperresonant, and breath sounds were absent. The mediastinum was shifted to the left side. There was no evidence of external trauma.

Röentgenoscopic examination disclosed complete pneumothorax on the right side; the dome of the right diaphragm was depressed, and the heart and mediastinum were shifted to the left (Fig. 3). No fracture of

FIG. III. Right pneumothorax following injury.

ribs was noted. A hypodermic injection of morphine was administered, and 1500 c.c. glucose solution were given intravenously.

Cyanosis, dyspnea, and pain increased, necessitating thoracentesis on the right side with removal of 700 c.c. air. Following this procedure the patient's condition improved rapidly. During the first twenty-four hours the temperature rose to 102 degrees, and slowly subsided until it was normal on the third day.

On February 12, 1937, röentgenoscopic examination showed that the middle and lower lobes of the lung were expanding but that the upper lobe was still partly atelectatic. Three days later the middle and lower lobes showed further expansion with apparently an increase in atelectasis of the upper lobe (Fig. 4).

Bronchoscopic examination was carried out, and a moderate amount of mucous secretion was aspirated from the bronchus to the upper

FIG. IV. Expansion of lower and middle lobes of right lung being with increase in atelectasis of upper lobe.

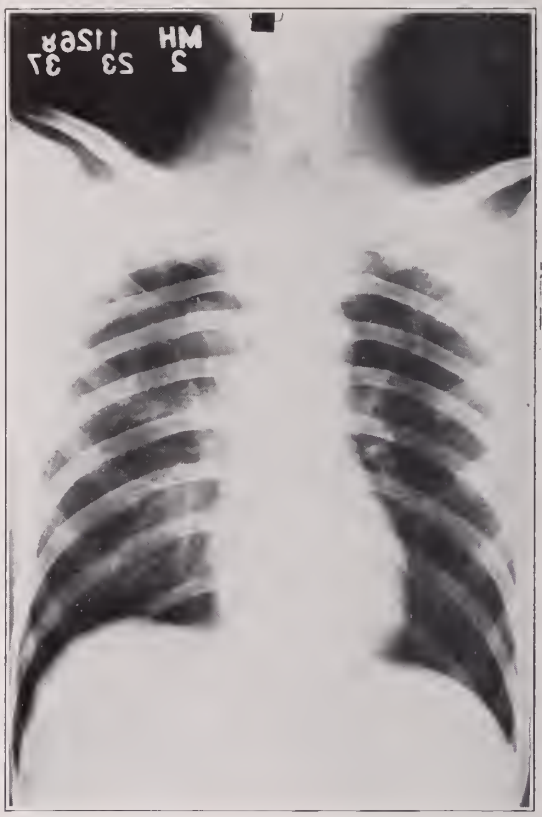

FIG. V. Almost complete expansion of entire right lung.

lobe of the right lung. Röentgenoscopic examination made immediately after bronchoscopy showed slight expansion of the atelectatic lobe.

Daily röentgenograms were made for seven days and each day there was successive expansion of the affected lobe (Fig. 5). On February 26th the lung had expanded completely, and the patient was permitted to leave the hospital.

Medical College of Virginia.

TERATA KATADIDYMA

By JOSEPH T. MALLAMO, M. D.
Fairmont, West Virginia

PRESENTATION of this case brings forth two interesting features: (1) this is the first case of double monster ever to be diagnosed (x-ray) before onset of labor; and (2) the first case of this type (craniopagus) double monster to be reported.[1]

"Double Monsters. — Monstra duplica come from one ovum, and are developed from one germinal vesicle. Two germinal spots, two primitive streaks, or two medullary grooves may be formed, or later in growth, a duplication of one or the other end of the germinating zone takes place. Experiments have shown that double monsters can be produced in the blastula stage by separating the blastomeres, which is accomplished mechanically or chemically. If two embryonal areas appear, it is possible that two complete individuals (homologous twins), or, if the two areas are not entirely separated, united twins, will result. If the two areas are unequal in size, one of the individuals is stunted and

attached as a parasite to the other, or may be included in the other. The etiology of such monstrous formations is unknown. Entrance of more than one spermatozoid into the ovum is not the cause, because eggs so impregnated usually die. Kohlbrugge has shown that in some animals the accessory spermatozoids supply food for the germinating ovum. Whether there is a splitting of one primitive streak or the fusion of two primarily developed is unknown—probably fusion occurs."

CLASSIFICATIONS

Double monsters are thus classified (Forester).[2]

Terata Anadidyma: In these the fission or doubling is from the head downward, in the most fully developed specimens there being one pelvis and two legs, the trunks being separate.

Terata Katadidyma: Here the splitting is from below upward, all grades being observed to the last, where the two complete bodies are attached at the head.

Terata Kata-anadidyma: In these the fission is from both above and below. The bond of union may be very broad, extending up and down the whole venter or dorsum of the two children, or very small, the point of attachment being at the sternum, the abdomen, or the sacrum. Rotation may bring the two bodies into a line, as in the Johnson twins from Wisconsin.

Homologous twins are the best examples of the last class, since in these the fission of the two streaks is complete. If the development of the two individuals is equal, two well-formed children result; if one is stronger than the other, its heart overcomes that of the other, which later shrinks up into an acardiacus. Depending on the original distribution of embryonal cells, one or the other portions of a fetus will be represented in the acardiacus, the head, the trunk, or the lower extremities. Sometimes all or a part of a primitive streak develops inside the other embryonal area, and thus inclusio foetalis and teratomata result.

Homologous portions of the two individuals are almost always united, and we name the monster after the location of the union; for example, when it is at the sternum, sternopagus; the ensiform appendix, xiphopagus (Siamese twins); at the sacrum, pygopagus (the Bohemian sisters); at the head, craniopagus, etc.

Of the above classification the most common type reported has been of the thoracopagus type. Heil, quoted by Shaw, Brumbough, and Novey[2] states that only 220 such cases have been reported up until 1921. In my own brief review of the literature to 1930 I was able to find 14 more cases that have been reported.

CASE HISTORY

Mrs. E. B. C., age 18, primipara: Stated she was pregnant and gave history of amenorrhea for five months. Her last menstrual period was June 20, 1936. Her first visit to my office was December 23, 1936.

During this five month period, without medical care, there was no nausea, no vomiting, no headaches, nor any other symptoms. She felt movement about one week before I saw her. Menstrual history negative. Family history negative. Symptoms referable to various systems negative.

PHYSICAL EXAMINATION

Height, sixty-three and one-half inches. Normal weight, 110; present weight, 134. Examination negative to abdomen. Uterus two fingers' breadth above umbilicus. Fetal heart sounds indicate right anterior occiput. Blood pressure, 120 systolic; 80 diastolic. Pelvic measurements normal. Wassermann negative; urine negative.

SUBSEQUENT VISITS

January 23, 1937: Weight 143, urine normal; blood pressure 130 systolic; 82 diastolic. Increase of nine pounds. Advised to return in one week.

January 29, 1937: Weight 139 pounds. No complaints.

One week later, weight was 135 pounds, loss of four pounds. No fetal movements for three or four days. Patient unable to lie on

back without nausea and vomiting. Pulse jumped to 184 while patient was on her back; blood pressure 140 systolic, 85 diastolic. On abdominal examination no fetal heart sounds were heard. Examination revealed marked tension of uterus which was the size of term.

With the findings of gain of weight in January of nine pounds and loss of eight pounds in two weeks along with cessation of fetal movements and fetal heart sounds, plus abnormal increase of uterus, a tentative diagnosis of hydramnios with monstrosity was made and immediate x-ray advised.

X-RAY OF FETUS IN UTERO

X-ray by Dr. C. T. Francis, at Cook Hospital, revealed double monster as shown below.

The two skeletal portions and the cervical spine and basal portion of the skull are easily distinguishable on this x-ray.

Cesarean section was decided upon immediately and a low section done. Convalescence was excellent. Patient left the hospital in 14 days.

DESCRIPTION OF FETUS

The fetus appeared to be about the size of an eight months' pregnancy—female, weighing about six and one-half to seven pounds. There were two definitely well-formed bodies with one fused head. The four arms and four legs were well-formed. The two bodies were facing each other and fusion began at the point of the umbilical cord upward and this fusion appeared to be just in the skin only until the head was reached, where definite fusion of the two heads to form one could be easily palpated. The head was as large in size as the two bodies together. Sex could be easily determined and the external genitalia were completely developed. Although the two bodies were facing each other with fusion of the heads, formation of the faces were lateral with one being completely developed, showing eyes, nose, mouth and ears, and on the posterior or on the other lateral side the only evidence of an approach to facial development was the embryonic pedicle which stuck up like a small ear in the mid-portion. This apparently was the undeveloped embryonic appendage which goes to form the eyes, nose and mouth. Just below this was another small pedicle about the size of a large lima bean which was probably undeveloped ears. There was very little maceration of the skin and it apparently was well preserved.

TWO LATERAL VIEWS

1. As outlined in the description of the fetus, a face can easily be seen and is fully developed.

2. The opposite lateral view, the embryonic pedicle is seen and immediately below are two undeveloped ears.

X-RAY OF FETUS

X-ray was taken and a description of the fetus was given by Dr. Francis, in conjunction with additional report by Dr. L. H. Osmond, which is as follows:

"A röentgenogram before and after delivery shows a complete skeletal development of each fetus below the level of the occipito-cervical junction. There is a definite maldevelopment of the heads, which are fused. There are two well defined orbits, which are on one side of the malformed head of the monstrosity. The zygomata, superior portions of the maxillae, and structures about the nasal passages are identifiable between the orbits. There are two sellae turcicae recognizable with the floors erect and only 12 mm. apart. Fusion has occurred between the sphenoidal bones in this area. There are two foramina just above the medial to the sellae turcicae, which are apparently optic foramina. This relationship suggests that one optic foramen and one sellae turcicae developed from each head, and this in turn suggests that the orbits were formed in the same manner.

The frontal bone is well-formed in the region of the orbits, but indefinitely malformed on the opposite side of the head where fusion has occurred. Here there are some irregular lines of increased density, which we were unable to identify. The parietal bones appear to be well formed on the side away from the orbits. Each occipital bone is well formed and the spheno-occipital suture line is discernible on each side.

Cook Hospital

REFERENCES

1. DeLee's Principles & Practice of Obstetrics, Fifth Edition: W. B. Saunders Company, Philadelphia and London.

2. Shaw, C. C., Brumbaugh, B. B., and Novey, M. A.: *Anatomical and Clinical Study of a Thoracopagus Monster Delivered Alive at Full Term:* American Journal of Obstetrics, Gynecology, 1934.

CURE DEPENDS ON PATIENT

The factors that are necessary for recovery from tuberculosis may be grouped into two categories, Dr. B. P. Potter reveals in his article "Tuberculosis Up to Date" in the April issue of *Hygeia.*

These factors are those over which the patient has no control and those which depend on his willingness to cooperate and face the disease intelligently. In the first group is his own resistance or immunity to the disease, the intensity and extent of it and the presence of cavities and/or complications.

Factors in the second group depend on certain actions of both physician and patient. The doctor should of course win his patient's confidence and initiate him gradually into the seriousness of his disease, impressing on him the cooperation expected of him.

The patient, on the other hand, has a definite responsibility to himself, to the physician and to those who sacrifice to see him through the period of cure.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

DIFFICULTIES ENCOUNTERED IN INDUSTRY

Enlightened industry nowadays realizes that it must carry a certain number of sub-normal individuals. In the long run this is sound economic policy, for industry cannot afford to lose trained employees nor to breed psychological unrest of workers caused by the knowledge that loss of employment will follow serious or prolonged illness. Yet the employment of workers who have tuberculosis, or have recovered from the disease, is an exceedingly awkward problem for tuberculosis is insidious and infectious and leaves its sufferers incapable of normal physical effort for long periods.

Economic difficulties experienced by the tuberculous wage earner are serious. They are partially relieved by continuing part wages. Treatment in the sanatorium is rendered easier and more effective if the worker is relieved of immediate worry and is given hope for the future. It reduces the temptation to return to work too soon.

Environmental difficulties are particularly acute in working-class areas. The problems of slums, overcrowding and undernourishment are being solved by the slow social evolution now going on.

Difficulties arising out of the patient's own attitude include, (a) fear of losing his income, (b) his job, and (c) fear of the sanatorium. These fears can be greatly allayed if the policy of the firm is to take back employees when they have recovered. The dread of the sanatorium can usually be overcome by education and wise propaganda.

The difficulty of returning to a different kind of work than that to which they have been accustomed must be faced by some workers. A man must know that his job is a real one and not one created merely to find him employment.

The employer's difficulties must be faced squarely. The returning tuberculous patient has usually a greatly reduced efficiency. He is inferior to the normal worker and this inferiority is likely to persist for a few weeks. If he attempts to keep pace with fellow workmen he invites early breakdown. Industry quite naturally, is not likely to welcome the worker who needs a sheltered life if he is a new entrant but most employers will take back old employees if the prospect of eventual return to reasonably good health exists. Of course, industry has to deal with many employees disabled by conditions other than tuberculosis. With these "crocks" the returning tuberculous worker has to compete for the suitable jobs. Many are the employer's problems in adapting the needs of industry to the employee who cannot be subjected to strains such as overtime work, shift and night work, and competition with more vigorous workers.

It is, of course, not possible to pay higher wages to the tuberculous patient than to other workers. In fact he must often be satisfied with a lesser wage. This means that at the very time he needs a higher and better standard of living, he actually has to be content with a much lower one. This situation calls for generous cooperation between the employer and the Care Committee (well organized in England). The tuberculous patient returning to industry should be subsidized until he is able to earn a reasonable wage. Industry cannot be expected to make the subsidy directly.

The danger of infecting other employees must also receive attention. A patient with a positive sputum should not be allowed to return to surroundings where he may infect others. Certainly he should not be permitted to engage in industry involving the handling or packing of food or which requires him to come into contact with the public.

The author urges close liaison between the tuberculosis service and industry. Small firms find it particularly difficult to deal with recovered tuberculous patients but can do much if the facts about tuberculosis are carefully explained to them by the medical officer or doctor. The doctor must not only be conversant with the disease but must also possess an intimate knowledge of the industry and requirements of the workers if he is to talk reasonably and convincingly with the management.

Difficulties Encountered in Industry in Dealing with the Tuberculosis Problem, Ronald E. Lane, M.B., M.R.C.P., Tubercle, Vol. XIX, No. 3, December, 1937.

DIFFICULTIES OF THE SUPERINTENDENT

The records of Parkside Mental Hospital show that in the past 30 years, 340 deaths occurred in which tuberculosis was a factor. Of these, 80 per cent were sufferers from some form of dementia or a depressed state, imbeciles and idiots. Patients suffering from these forms of mental disorder are usually incapable of complaining of feeling ill. They

are lethargic and disinclined to take exercise, indifferent to food and of degraded habits. Respiration is shallow and infrequent and circulation is poor.

The diagnosis at an early stage is not easy as the usual physical signs are not apparent. It is necessary, therefore, to record the weight weekly, to take the temperature regularly, to examine regularly the feces for the presence of tubercle bacilli and to use the x-ray when indicated.

The pressure of economy weighing on public institutions leads to difficulties of providing segregation, overcrowding, poor dietary, absence of laboratory facilities, inadequate milk supply and insufficiently trained nursing staff.

These and other difficulties, common to most mental hospitals, have been largely overcome at Parkside Mental Hospital since the appointment of the present medical superintendent in 1914. The ratio of deaths from tuberculosis at Parkside compared with (English) County and Borough Mental Hospitals has been decidedly lowered. In 1935 for example, this ratio for Parkside was 1.5 deaths from tuberculosis per 1,000 patients in residence as against 4.6 in all other hospitals.

My Chief Difficulties in Dealing with the Tuberculosis Problem, H. Dove Cormac, M.B., M.S., D.P.M., Tubercle, Vol. XIX, No. 3, December, 1937.

DIFFICULTIES OF THE GENERAL PRACTITIONER

To persuade people, especially young people, to submit to observation and treatment during what might be called the "antenatal" stage of the disease in which no certain diagnosis can be made in the face of the doctor's suspicion, is a problem of the general practitioner. The chief reasons for the reluctance of patients to seek medical aid include:

1. The temporary improvement in their general health following treatment which lulls both the patient and the doctor into a false sense of security.
2. Prejudice against being regarded as a subject for notification. Patients fear the social stigma, segregation and threatened invasion of their homes by the authorities.
3. Alarm caused by the prospect of losing income. This is probably the greatest obstacle to continued observation. The vast majority of working class people simply cannot afford to be ill and hesitate to seek an opinion which will run counter to their own inclinations.

Other difficulties include the isolation of the patient at home, the supervision of contacts, and the question of fitness for work. The doctor's greatest difficulty is the social environment and low standards of living of his patients.

My Chief Difficulties in Dealing with the Tuberculosis Problem, W. F. Jackson, M.B., Ch.B., J.P., Tubercle, Vol. XIX, No. 3, December, 1937.

FOOT TROUBLES

A large percentage of foot troubles which adults endure are the direct result of careless care of the feet during the first few years following birth, Beulah France, R.N., declares in her article "Fitting Feet for Life" which appears in the April issue of *Hygeia.*

Proper care of the child's growing feet incorporates the following: Stockings and shoes should be a little longer and a little wider than the child's foot, and as soon as the shoe fills up, that pair should be discarded.

White shoes are the most practical for young children. White shows the dirt quicker and is therefore safer than a darker color which conceals the dirt. They can be scrubbed and made clean without danger of removing the color. They should be scrubbed because infants enjoy direct contacts between foot and mouth.

Children's shoes should be changed often. Three or four pairs had better be kept and used alternately so that they may be well sunned and aired.

At teen-age time, or perhaps even a bit earlier, the boy and the girl concentrate their thoughts largely on appearance. But beware, for the feet are still growing. So, although there has been supervision of shoe purchases throughout the first 12 years, if now young people are allowed to choose their own footwear, mistakes may be made which will go far toward upsetting all the excellent foundations which were laid by careful parents.

Homemakers who "economize" by wearing stretched-out bedroom slippers with no heels or worn-out evening slippers with spike heels as they go about their household tasks often blame their backaches and headaches on too much work instead of on too little thought of their feet.

For those who are fortunate enough to have escaped any foot difficulties a suggestion is given: Wear only such shoes as will give all-day comfort.

President's Page

"Every purpose is established by counsel; and with good advice make war."—Proverbs 20:18.

The practice of medicine is a continuous warfare on disease, punctuated frequently by special drives on certain salients. Recently the public's attention has been focused on one of these drives eminently worthy of our attention and support. One of our ancient antagonists is to be hunted in his lair and scourged with the whip of knowledge. The Field Army, composed of the women of the Federated Club of America has for its slogan, "Fight Cancer with Knowledge; Cancer is Curable in its Early Stages."

This movement may be said to be our legitimate offspring, the frustration of years of effort to contact the early and curable cancer cases, and the belief that greater success can come only from taking the public into our confidence. In this state at least this effort to carry the battle to the line of last defense has had the benefit of counsel and advice from the chairman of our Association's Cancer Control Committee, Dr. Russell Bailey, to whom much credit is due.

If the appeal of the Field Army reaches its goal many persons will come to our offices for a physical check up. To do our duty conscientiously will often require as much tact as skill. Undoubtedly many persons will consult their physicians who have neither cancer nor symptoms of cancer, but are obsessed with cancer phobia. Phobias are not as serious as disease but they cause much unhappiness and morbidity. In the sixteenth century Montaigne, a celebrated French philosopher, said: "The thing in this world I am most afraid of is Fear." Let us not forget that most people who consult their physicians are impelled to do so by fear for their health, mental or physical. Let us not, therefore, treat lightly these patients who take us into their confidence and fortunately have nothing worse than the fear of cancer. Do not ridicule their moles, warts, and lumps; diagnose them. If preventive medicine about which we prate so glibly is ever to mean anything we must encourage patients to consult us when they are well.

It is not always easy to be sure whether a lump in the female breast is a harmless manifestation of natural involution or is actually or potentially malignant. Anomalous vaginal bleeding always merits thorough investigation. The clinical experience of years indicates that chronic endocervicitis has malignant possibilities and should, therefore, be eliminated by appropriate therapeutic measures. Don't compel our patients of cancerous age to resort to the prescriptions of the radio announcer for relief of their vague digestive disturbances; we have x-ray and other laboratories; let us make early use of our facilities. A thousand times better that we occasionally be accused of selfish exploitation of our patients than that we overlook a curable case of cancer. Finally, and not intended as a dirty dig, the making of digital examinations per ano in the male is a sign of a good doctor; rubber gloves are cheap!

President.

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MORE ABOUT FEES

The editorial entitled "Medical Fees" in the April JOURNAL has already attracted considerable attention. Various comments on the editorial have been received, both written and oral, both for and against. We wish to encourage a continued exchange of views on the subject of medical and surgical fees; a subject discussed all too little in medical meetings and medical journals.

One interesting query brought forth by the April editorial is worthy of further comment. "Manufacturers of automobiles, radios, clothing, shoes and other commodities have one price," said one doctor. "They make no distinction between rich and poor. Why should the medical profession make such a distinction."

From a strictly theoretical standpoint, perhaps no distinction should be made. But the standpoint of practical application is an entirely different matter. The man with an acute appendix has no option; he must have an immediate operation. But the man who wants an automobile or a suit of clothes, or food for his family has any number of options. For the automobile, he can either postpone his purchase, buy a new car, or pick up a rattletrap for twenty-five dollars. For the clothing, he can buy either a sixty dollar suit or a pair of overalls, depending upon his pocketbook. For the food, he can buy either steak and artichokes, or sow belly and black beans.

There is no differentiation in the quality of medical service. In any given community or city, it is the same for rich and poor. A poor patient can't buy a second-hand appendectomy. Second and third rate gall-bladder operations are not for sale. The market provides no rattletrap herniotomies. A merchant can sell silk to the rich and calico to the poor, but the doctor can't. A merchant can fit his wares to the purse of the purchaser. The doctor, if he is smart, will do just the opposite. Even the most elementary logic teaches us that a reasonable fee charged a bank president could be a life-time obligation to the bank president's janitor.

This is important to the medical profession because it is so vitally important to the wage earners of West Virginia. The average self-reliant wage earner who receives a two or three year financial setback from a doctor bill is a ready convert to socialistic medicine. We believe that the doctor who renders the greatest service to humanity and to his profession is the doctor who fits his fees to the pocketbooks of his patients. To our way of thinking, the doctor who practices on a "one price for all" basis is worshipping a false god.

We would like to see this matter of professional fees discussed more freely in the columns of this JOURNAL and particularly in our county medical society meetings. When we consider fees from the practical, modern business standpoint, we will go a long way toward reducing the clamor for a change in our present system of medical practice.

THE PROFESSION AND THE A. M. A.

The American Medical Association is governed by its House of Delegates. Members of the House of Delegates are elected by the various state medical societies. The state societies are made up of their constituent county medical societies. Every doctor has a voice in his county organization. Critics who claim that a breach exists between the American Medical Association and the medical profession are probably not familiar with organized

medicine's democratic system of government. No breach can exist, because the American Medical Association *is* the medical profession.

It is no doubt true that some doctors do disagree with the policies and principles of the organized medical profession. If so, their criticism should be directed against the philosophy of their profession; not against the American Medical Association. The latter is simply the mechanism which carries out the mandates of the doctors themselves.

Doctors who publicly criticize the American Medical Association before lay audiences or through the lay press do considerable harm to their profession. The "Committee of 430" presents the classic example. This minority has presented its proposals to the medical profession at numerous annual gatherings. The medical profession has felt, after careful study and consideration, that these proposals were unsound. Hence the medical profession has voted almost unanimously against the proposals, not once but several times. Now the "Committee of 430" is making a public attack on the American Medical Association and, through adroit lay publicity, creating the impression that the organized medical profession is disintegrating through internal strife. It would be just as illogical to say that the United States was disintegrating because of the Socialistic minority that followed Norman Thomas in the 1932 election.

Another example is to be found in the recent New York meeting of the American College of Physicians. At this meeting, Dr. John M. Peters of Yale University publicly advocated the use of general taxation to help pay for medical care; in other words, socialized medicine. At the same meeting Dr. James H. Means of Boston, president of the American College of Physicians, urged his fellows to oppose the policies and principles of the American Medical Association. These are men who have been unable to "sell" their ideas to the House of Delegates of the American Medical Association, so they are now attacking from the outside. Publicity following the addresses of these two distinguished men furthered the unwelcome and untrue idea that our parent organization is being ripped asunder.

West Virginia has been particularly free from these "below the belt" onslaughts on organized medicine. Most of us are not socialists and most of us sufficiently level-headed to realize that even though our professional structure may be far from perfect, it would be chaos to tear it down. Without the American Medical Association our profession would soon become a lost art, and our economic welfare would be at the mercy of every whim and caprice to which governmental regulation is heir.

The next meeting of the American Medical Association will be held in San Francisco in June. Now is a good time for each member to write his ideas or criticisms to our West Virginia delegates. And our own White Sulphur meeting will be a good time to air these views.

COMPENSATION FEES

Effective April 1, 1938, all doctors' bills for services rendered injured employees under the Workmen's Compensation Law must be presented to the Compensation department for payment within three months after the completion of treatment. This new ruling is found in Section F of Rule 10 of the new regulations recently issued by Commissioner A. G. Mathews.

In explaining this new regulation, Commissioner Mathews pointed out that its chief purpose is to enable his department to charge employers for their true experience for any given period of time. In the past he stated that tardy claims had occasionally been filed for medical or surgical services against companies no longer in operation. He felt that the time limit of three months would be ample for the filing of bills and would insure the payment of such bills from the compensation fund.

Copies of the new manual of rules and regulations may be secured by writing Mr. Ralph Hartman, secretary of the Compensation Department, or through the Association Headquarters at Charleston.

LEND A HAND

In this issue and in all issues of the WEST VIRGINIA MEDICAL JOURNAL will be found some 28 to 30 pages of paid advertising. The income from this advertising pays the complete publication expense of the JOURNAL and provides a comfortable surplus each year. Almost all of these advertisers have supported the JOURNAL for a considerable number of years and they are interested in West Virginia as a permanent market. These folks merit your support and should receive it.

Scattered through the advertising sections of each issue are coupons which interested readers are requested to clip and mail. Some of these are for institutional pamphlets, some for cigarettes, some for brochures on medicinal preparations. Our members who are interested in giving extracurricular support to our JOURNAL can do so by using these coupons for information and samples in which they are really interested.

The busy practitioner who has neither the time nor the inclination to receive the various "detail" men who call on him can also be of great service to his JOURNAL by limiting his conferences to representatives of firms who use the JOURNAL's advertising columns. Many of our members have already found this to be a great time saver. We recommend this plan for those doctors who need to limit the number of business callers.

PARENTS' GUIDANCE

Don't ignore your adolescent children or try to control them. Your task as parents is to guide them, Dr. Frank Howard Richardson implores in his article "Guiding the Adolescent" which appears in the April issue of *Hygeia*.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

DUTIES OF A SANITARIAN

By H. K. GIDLEY*

The sanitarian is the newest addition to the staff of a well organized county health department. His duties are not as well known to the public as those of the health officer or nurse, although his program should be as carefully planned and defined as any other activity of the department.

When health departments began to employ sanitary inspectors a few decades ago they were known as "sanitary police" or "sanitary officers" for their work was of an enforcement nature. These men were without scientific training and many of the regulations they were expected to enforce were based on false premises as the true facts regarding transmission of many diseases were not known. These early sanitarians were taught by the scientific men of that day that sewer gas and stagnant ponds were the deadly agents in the spread of filth diseases. Lime was the chief stock in trade in combatting these diseases.

As the true facts regarding disease transmission were established during the last quarter of the nineteenth century the importance of purely environmental factors began to be recognized. It was learned that some of the diseases will yield most readily to improvements in environmental sanitation and that the safeguarding of water, milk and food supplies, the improvement of body waste disposal and the eradication of animal hosts were of prime importance.

The sanitarian engaged for work in a county health unit in West Virginia today must meet certain educational standards and have received fundamental training in his work. The personnel is divided into two classifications. Men with engineering degrees are classed as sanitary engineers; all others are classed as sanitary inspectors. An effort is made to secure the best personnel possible under the existing salary schedule.

To be successful in his work the sanitarian must have the ability to get along with the public. His accomplishments, to a considerable extent, depend upon his ability to persuade the public to spend

*Supervising Engineer, Bureau of County Health Work, State Health Department.

money for sanitation improvements, and often only intangible benefits accrue to the man who spends the money. This is in contrast to the nurse and health officer who furnish a tangible service that requires no outlay of money.

The sanitarian is not to be considered a law enforcement officer. As an agent of the health officer he has broad legal authority with respect to many things but frequent use of this authority will not result in the lasting improvements that can be achieved through educational methods. A better understanding of the sanitarian's work will result if one thinks of him not merely as a person who makes inspections but as one who promotes practices and methods which have as their aims the prevention of disease by eliminating or controlling the environmental factors which form links in the chain of transmission.

DUTIES

Just what does the county sanitarian do? What are his objectives? This will vary in degree from county to county for his program should be planned to suit local needs and the important sanitation problem of one community may be relatively unimportant in another, or time may be better spent by working on a problem on which cooperation can be secured to the neglect of one on which no cooperation can be had. In the following discussion the duties of the sanitarian will be presented in a broad, general way. The program presented herein may seem too comprehensive and in many counties it can not be fulfilled because of a lack of personnel. However, all county sanitarians work toward this schedule and many are able to adhere to it to a surprising degree.

This refers to town and city water supplies. Inspection and certification of these supplies is a function of the State Health Department and they are not supervised by the county sanitarian as a rule.

Semi-public water supply refers to individual water supplies located at schools, dairies, tourist camps, along the highways, public institutions, etc. The sanitarian is expected to investigate these supplies at least annually and seek to have all dangerous or potentially dangerous supplies eliminated from use or safeguarded. He should be competent to advise as to the proper method of protecting the supplies. These supplies should be sampled for bacteriological examination. A description of each semi-public water supply and a chronological record of analyses should be filed at the local health department.

Private water supplies are inspected and sampled only upon request or during epidemiological or other special studies. The sanitarian is available to furnish this service to anyone in the community upon request. He should be competent to give sound advice on individual water supply problems.

EXCRETA DISPOSAL

The county sanitarian is expected to promote needed extensions to public sewerage systems and to seek prompt abatement of all dangerous sewerage defects. He is expected to use his influence in developing a sense of responsibility in the community with respect to proper sewage disposal.

The sanitarian seeks to have an approved sanitary privy or septic tank system installed at every home, school or place of business not having access to a sewer system. The sanitarian makes regular inspections of public places to promote this activity. The public health laws and regulations authorize the health officer to enforce such improvements.

MILK SUPPLY

The county sanitarian is expected to promote a clean, safe, market milk supply. The immediate goal of the sanitarian is to have all market milk and cream graded in accordance with the regulations adopted by the Public Health Council. This necessitates that during the year each dairy and plant be rigidly inspected several times and that eight samples of milk from each dairy be examined for bacteria, butterfat, specific gravity and sediment. A record of inspections and sample analyses is systematically kept at the local health department. The sanitarian seeks to have the municipal governing bodies adopt a uniform milk ordinance. He is expected to assist in educating the public to use safe milk in larger quantities.

The sanitarian is expected to promote a high standard of sanitation in all schools with emphasis on safe water supply and excreta disposal. An annual field visit is made to each school and the status of all sanitation items such as site, building, water supply, excreta disposal, heating, ventilation, lighting and seating recorded for presentation to the school board. The sanitarian is available for talks at schools and to serve the school board in certain capacities.

The sanitarian is expected to promote proper methods of handling foods in public food handling establishments. He makes routine field visits to these establishments and seeks to have all food subject to contaminating influences during display,

storage and processing handled in a manner that will reduce the likelihood of such contamination. This includes public eating and drinking places, grocery stores, meat markets, slaughter houses, roadside stands and bakeries. Many counties omit inspection of those establishments having the least public health significance such as grocery stores and meat markets.

RECREATIONAL SANITATION

The county sanitarian makes routine field visits to all tourist camps, roadside parks, labor camps, scout camps, welfare camps, etc. Sanitation standards have been established for these various places and it is his duty to seek compliance with these standards.

The sanitarian should visit all public bathing places, both natural and artificial pools, and by a system of inspection and sampling determine which places meet a reasonable standard. Those bathing places not complying with established standards should be placarded to warn the public.

Mosquito control is not a public health problem in West Virginia but the sanitarian should be able to advise the public of effective control measures upon request.

The sanitarian should be able to apply and supervise effective rat and vermin control measures if a condition arises where such control measures become necessary to protect the public health.

The sanitarian should use his influence in creating a sense of responsibility in his community for the proper disposal of municipal sewage but investigation and studies on this matter should be referred to the State Water Commission.

It is the sanitarian's duty to investigate promptly all nuisance complaints reaching the health department. It is his duty to seek abatement of only those nuisance conditions affecting the public health.

Successful prosecution of a sanitation inspection and control program makes it necessary for the county sanitarian to educate the public in these matters. He should execute a well considered plan of disseminating information through talks at public gatherings, distribution of literature, meetings of selected groups, showing of films, newspaper articles, exhibits and other available means.

All forms of rational play may produce a deep pleasurable motivation to constructive activity and the balance for a hygienic regimen of living so necessary in our hurrying and hurried age.

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on the evening of April 14 with an excellent attendance. The guest speaker of the program was Dr. C. C. Coleman of Richmond, Virginia, Professor of Neurological Surgery at the Medical College of Virginia, who spoke on "Spinal Cord Lesions." A liberal and interesting discussion followed.

A buffet lunch in honor of Dr. Coleman was held following the scientific program.

A motion picture film on the management of the pneumonias and allergic diseases was shown to society members at St. Marys Hospital on April 19 through the courtesy of Lederle Laboratories.

BOYD F. BROWN, *Secretary*.

FAYETTE COUNTY

The regular March meeting of the Fayette County Medical Society was held at Oak Hill on the evening of March 22 with Dr. J. Ross Hunter, Charleston, as the guest speaker. His subject "Carcinoma of the Cervix," was of much interest. Discussion was led by Dr. M. Gillies, Charleston, with comments upon the pathology presented by carcinoma.

New members admitted to the society at this meeting were Dr. J. M. Spinks, Mount Hope; Dr. Max F. Raine, Fayetteville, and Dr. L. A. Dickerson, Fayetteville.

Dr. C. W. Waddell of Fairmont, State Association President, was the guest of the society at its April 12 meeting held in the Methodist church at Montgomery. Dr. Waddell spoke informally, reviewing past Association accomplishments and future problems of our State Association.

Dr. Ray M. Bobbitt was the scientific essayist at this meeting and gave a most interesting paper on "Practical Management of Urinary Tract Infection." His talk was supplementad by a series of x-ray studies of common urinary tract conditions of unusual symptomatology.

Mr. John Hart, Charleston, business manager of Hospital Service, Inc., spoke on hospital insurance as now in operation in Kanawha county.

Dr. B. H. Swint, Charleston, and Mr. Joe W. Savage, state executive secretary, were visitors to the society.

Dr. Norman G. Patterson, superintendent of McKendree Hospital, was elected to membership in the society.

G. A. DANIEL, *Secretary.*

HARRISON COUNTY

The regular monthly meeting of the Harrison County Medical Society was held at six o'clock p. m., on April 7 at the Stonewall Jackson Hotel, Clarksburg, with Dr. E. F. Wehner, president, presiding. Minutes of the preceding meeting were read and approved.

The guest speaker of the evening was Dr. William B. Morrison of Columbus, Ohio, president of the Columbus Academy of Medicine. Dr. Morrison gave a very interesting paper on "The Recognition of Protein Deficiency in Carcinoma of the Stomach."

JAMES G. RALSTON, *Secretary.*

KANAWHA COUNTY

The Kanawha Medical Society held its regular monthly meeting on the evening of April 5 at the Daniel Boone Hotel, Charleston, with Dr. Jesse G. M. Bullowa, Clinical Professor of Medicine of New York University, as the guest speaker. His subject was "Management of the Pneumonias." Dr. Bullowa reported on the results of over ten years of clinical research experience as director of the Littauer Pneumonia Research Fund. This was one of the most interesting presentations ever given before the society and attracted many guests from neighboring county medical societies.

Delegates elected to the state meeting at White Sulphur Springs in July were Drs. B. H. Swint, A. Spates Brady, Russell Kessel, A. A. Shawkey, T. G. Reed, A. E. Amick, William Thornhill, Jr., and P. A. Tuckwiller. Alternates will be Drs. Claude B. Smith, W. P. Black, Herbert Wise, Peter Haley, II, Francis Clark, S. L. Bivens and Paul Revercomb.

A. SPATES BRADY, JR., *Secretary.*

LOGAN COUNTY

The Logan County Medical Society held its regular meeting on April 13, 1938. Dr. Howard Phillips of Wheeling demonstrated nine dermatological cases and showed slides on some of the more common skin diseases met with in general practice.

Dr. Russell Bailey gave a talk on "Lobectomy for Lung Abscess" and showed slides of cases to demonstrate the results. He also outlined the guiacol treatment for bronchiectasis.

The society went on record as pledging their support and cooperation to the Woman's Field Army for the Prevention of Cancer.

J. L. PATTERSON, *Secretary.*

MARION COUNTY

The Marion County Medical Society held its regular monthly meeting at the Fairmont Hotel on the evening of March 29 with a good attendance. The speaker was Dr. Howard A. Power, Pittsburgh, who gave an interesting and practical paper on "Trial Labor." Following the discussion, a four reel moving picture by Dr. DeLee on "Forceps Delivery" was shown.

AMOS H. STEVENS, *Secretary.*

MERCER COUNTY

The Mercer County Medical Society held its regular monthly meeting in the Directors' Room of the Municipal Building, Bluefield, March 24 at 8:00 p .m. This meeting was devoted principally to business and discussion of certain committees.

The Committee for Medical Participation in Public Assistance was reappointed: Dr. R. O. Rogers, chairman, and Drs. Albert H. Hoge and B. S. Clements. It was pointed out by various members of the society that this committee has been very inactive during 1937. Opinion was expressed that this committee call a meeting in the very near future for the purpose of correcting certain features in Mercer County Participation in Public Assistance.

Recently Goodykoontz Drug Stores, Inc., of Bluefield, have sponsored a series of health talks telling the public about the doctor. These will appear each Tuesday throughout the year in our local newspaper. These articles will be of benefit to everyone interested in ethical medical practice. The society went on record as endorsing the same.

During the course of the business session, it was pointed out that the by-laws of our society should be revised in such a way as to conform with those of the state. Dr. Hoge suggested that a committee be appointed by the president in the near future. He recommended that our application blanks be changed as follows: First: A new member must have his application filed thirty days before election. His name must appear on the program preceding his election. Second: The following question must be answered: "Have you ever been convicted of felony or been confined to jail?"

There being no further business, the meeting was adjourned.

The Mercer County Medical Society met in the Directors' Room of the Municipal Building, Bluefield, April 20, at 8:30 p. m. The membership was well represented and several guests were present.

Dr. Edward F. Roberts, associated with Lederle Laboratories, lectured and showed moving pictures on "Pneumonia and Allergy." This presentation was particularly interesting and instructive.

Adjournment was called following a short business session.

O. G. KING, *Secretary.*

MINGO COUNTY

A regular meeting of the Mingo County Medical Society was held at the Williamson Memorial Hospital on April 11, 1938, at 7:30 p. m., Dr. R. A. Salton presiding.

A paper was read by Dr. George W. Easley, on the subject "The Valuation of Compensible Injuries." The paper was discussed at length by most of the members present.

Dr. Waddell, and Mr. Joe W. Savage were expected, but due to the illness of Mrs. Savage were unable to attend, much to the disappointment of the members of the society.

Dr. J. C. Gaskel mentioned the possibility of Mingo county and the city of Williamson jointly employing a full time health officer. This was held as impossible by Dr. Lawson, on the basis that Dr. E. P. Stepp of Kermit was appointed for a term of four years from January 1, 1938.

Luncheon was served to the members by the hospital.

GEORGE W. EASLEY, *Secretary.*

MONONGALIA COUNTY

The Monongalia County Medical Society held its regular monthly meeting at the City Hospital, Morgantown, at six o'clock on the evening of April 5. Dinner was served to the members present, following which the scientific program was presented.

The guest speaker of the evening was Dr. William B. Morrison of Columbus, Ohio, president of the Columbus Academy of Medicine. He gave a highly interesting paper on "The Recognition of Protein Efficiency in the Treatment of Carcinoma of the Stomach." A liberal discussion followed.

G. R. MAXWELL, *Secretary.*

OHIO COUNTY

Dr. Barney Brooks, Professor of Surgery of Vanderbilt University School of Medicine, Nashville, was the guest speaker at the April 8 meeting of the Ohio County Medical Society which was held in the Solarium of the Ohio Valley General Hospital. His subject was "Surgery of the Gallbladder." Discussion was opened by Dr. Edward M. Phillips, Dr. G. W. Abersold and Dr. W. P. Sammons.

The guest speaker at the April 22 meeting of the society was Dr. Frank N. Wilson, Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, who gave a most interesting presentation on "Cardiac Pain." Discussion was led by Dr. R. J. Snider, Dr. H. R. Sauder and Dr. J. P. McMullen.

W. C. D. MCCUSKEY, *Secretary.*

AMUSING SICK CHILD

With knowledge of types of playthings most suitable for bedridden children, a nurse can provide amusement for them and still not devote too much of her time to this matter, as Rose H. Alschuler and LaBerta A. Hattwick point out in their article "Amusing the Sick Child" in the April *Hygeia.* In other words, she need not give more time but better informed thought.

She needs to know, for instance, that all young children, sick or well, would rather play with toys than with other children or adults. She should know that raw materials, such as blocks, clay, crayons and sand, will interest children for a longer period and will be adapted to a wider age range than the often selected mechanical toys.

Further, she needs to know that in a number of hospitals, methods of giving children sand and clay have been devised that give freedom to play without putting on the nurse undue hardship of cleaning up. Picture books, beads, peg-boards and puzzles make for more quiet play and hence are better bed occupations than such materials as bean bags, balls and small automobiles.

Certain activities, such as stringing beads, working puzzles, cutting and sewing, may require excessive concentration and eyestrain in the child who is under par physically; hence, they should not be used without the physician's advice. Play materials for young children meet many personality and educational needs.

General News

WHITE SULPHUR PROGRAM

Dr. C. W. Waddell, Association President, has recently announced his selection of the Orators in Medicine and Surgery for the White Sulphur Springs convention next July 11-13, 1938. Dr. C. B. Pride, Morgantown, has been named for the Oration on Surgery and Dr. C. B. Chapman, Welch, for the Oration on Medicine. Dr. Pride's subject will be "Injuries to the Knee Joint." Dr. Chapman's oration will be on "Human Blood as a Therapeutic Agent."

Another convention assignment recently filled was the selection of Dr. D. A. MacGregor, Wheeling, as banquet toastmaster. Dr. MacGregor served as Association President in 1933.

Arrangements are now being worked out to show the lay film, "The Birth of a Baby" on Sunday evening before the opening of the convention on Monday. If the film is presented, it will not be a regular part of the White Sulphur meeting but will be open for all those who care to attend. The West Virginia Society of Industrial Physicians and Surgeons will also meet at the Greenbrier on Sunday evening.

The four sectional meetings and the West Virginia Heart Association will meet on Monday, July 11. Guest speakers for the Section meetings will be Dr. J. C. Gittings, Professor of Pediatrics, University of Pennsylvania School of Medicine, Philadelphia, for the Pediatric Section; Dr. Waltman Walters of the Mayo Clinic, Rochester, Minnesota, for the Section on Surgery; Dr. Lewis Henry Clerf, Professor of Bronchoscopy of Jefferson Medical College, Philadelphia, for the Eye, Ear, Nose and Throat Section, and Dr. Horace M. Korns, Professor of Medicine of Iowa University School of Medicine, for the Section on Internal Medicine. Dr. Korns will also appear on the Heart Association program as guest speaker.

Other out-of-state guests on the White Sulphur Springs program will be Dr. Gordon F. McKim, Professor of Urological Surgery, University of Cincinnati School of Medicine; Dr. Edward L. Compere, Professor of Orthopedic Surgery, Chicago University School of Medicine; Dr. Henry S. Ruth, Associate Professor of Anesthesia, Hahnemann Medical College of Philadelphia, and Dr. Nicholas J. Eastman, Professor of Obstetrics, Johns Hopkins University School of Medicine.

A special luncheon meeting is being planned by Association members interested in anesthesia in honor of Dr. Ruth, during which a round table discussion of anesthetic problems will be held.

Dr. Eastman, who is scheduled to appear on the general program on Wednesday afternoon, July 13, plans to stay over on Thursday for the annual gathering of the West Virginia Society of Obstetricians and Gynecologists. Dr. Eastman will be the guest speaker for the obstetrical society meeting.

Plans for the White Sulphur meeting are rapidly nearing completion. A number of scientific exhibits have already been scheduled by different Association committees and by the State Health Department. All of the commercial exhibit spaces that could be made available have already been sold and a very complete and diversified display will be in readiness on the opening morning of the convention.

DISTRICT OF COLUMBIA MEETING

The Annual Scientific Assembly of the Medical Society of the District of Columbia will be held May 4 and 5, 1938.

Some guest speakers for the Assembly are Doctors William P Healy, New York, who will present "Carcinoma of the Corpus Uteri; Treatment and Prognosis"; Roy Upham, New York, "New Trends in Diseases of the Stomach"; Perrin H. Long, "The Mode of Action and Toxicity of Sulfanilamide."

The above mentioned speakers and many other men compose a very valuable scientific program for the Assembly.

OBSTETRIC PILGRIMAGE

The third annual clinic session sponsored by the West Virginia Obstetrical and Gynecological Society was held in Cleveland, Ohio, March 7, 8 and 9, 1938. Dr. Harry G. Steele, chairman of the Clinic's Arrangement Committee, arranged one full day of specialized clinics respectively at Maternity Hospital, St. Luke Hospital, and Cleveland Clinic. Thirteen members of the society attended the sessions and it was the opinion of everyone that the special programs at the three hospitals were complete in their coverage of both obstetrics and gynecology. A delightful luncheon was served at each hospital. At these luncheons, the entire staff of the hospital presenting the program for the day attended.

The first day's session was held at Maternity Hospital, where Dr. Arthur H. Bill and his associates presented a number of actual deliveries and several gynecological operations. The afternoon was devoted to ward rounds, dry clinics and other subjects illustrated by lantern slides and moving pictures.

The second day was spent at St. Luke's Hospital where Dr. A. J. Skeel and his associates furnished a similar and also highly interesting program. The hospital also gave a dinner in honor of the visitors and at its conclusion held a special meeting of The Cleveland Hospital Obstetrical Society. This organization celebrated its fifth anniversary in March, during which time the maternal death rate for Cleveland dropped fifty per cent. Its success was so great that later a state organization was effected and its work has already resulted in marked lowering of the maternal death rate for the entire state of Ohio.

The third day was spent at Cleveland Clinic with Dr. George W. Crile and Dr. Tom E. Jones, assisted by other associates, furnishing the varied and instructive program. A feature of this session was the personal interest shown by Dr. Crile. Instead of twenty minutes alloted him on the program, Dr. Crile spent two hours personally conducting the group through the Clinic, the Research Department, and the Comparative Anatomy and Biology Museum. This museum is but partially finished at the present time but when completed will show wax reproductions of more than six hundred different animals, birds and fish, from the lowest form of life to man. The thyroid, suprarenals, brain, and sympathetic nervous system of each specimen will be faithfully shown to demonstrate their interrelationship — a work which has taken Dr. Crile to all corners of the world where each specimen secured was dissected intact and preserved at the time the animal was killed. The group felt it to be a distinct honor to see this marvelous work which will not be opened to the public until completed.

The annual pilgrimage of the society to some recognized medical center each year has proved increasingly popular and arrangements are now being made to have the fourth clinic session in either Cincinnati or in Pittsburgh.

Members of the West Virginia Obstetrical and Gynecological Society who attended all day clinics at Maternity Hospital, St. Luke's Hospital, and Cleveland Clinic, on March 7, 8 and 9, 1938, respectively, Cleveland, Ohio.

Top Row: Drs. Fred E. Brammer, Dehue, W. Va.; H. E. Beard, Huntington, W. Va.; J. L. Reycraft, Cleveland, Ohio; W. R. Barney, Cleveland, Ohio.

Middle Row: Drs. G. A. Ratcliff, Huntington, W. Va.; Frances A. Clark, Charleston, W. Va.; A. P. Hudgins, Charleston, W. Va.; Ed J. Humphrey, secretary and treasurer, Huntington, W. Va.; H. G. Stee'e, Bluefield, W. Va., Chairman of Committee on Arrangements; G. V. Morgan, Fairmont, W. Va.

Bottom Row: Drs. A. Morgan Dearman, Parkersburg, W. Va.; W. Bronaugh, Parkersburg, W. Va.; Arthur H. Bill, Cleveland, Ohio; Walter W. Point, president, Charleston, W. Va.; Joseph P. Smith, Cleveland, Ohio; W. E. Hoffman, Charleston, W. Va.

NEISSERIAN MEETING

The Fourth Annual Session of the American Neisserian Medical Society will be held in Washington, D. C., on May 16 and 17, 1938, in the Public Health Auditorium located at 19th Street and Constitution Avenue, N. W.

The session will open with a symposium on sulfanilamide. Perrin H. Long, M. D. of the Johns Hopkins Hospital will deliver the principal address. Dr. Long's work puts him in the position of being the country's leading authority on the chemistry, mode of action, and clinical use of sulfanilamide.

Following the presidential address there will be simultaneous meetings of the three following sections, Male Clinical, Female Clinical, Laboratory and Research. The Male Clinical Section will discuss in considerable detail the question of nomenclature, standard record forms, diagnosis, and cure. The Female Clinical Section will discuss diagnosis and cure. The Laboratory and Research Section will discuss bacteriology, serology, and research. The reports of these deliberations as accepted on the following day will become the society's official opinion and will serve as authoritative information which when disseminated will undoubtedly result in clarifying some of the present needless confusion. This would seem to be an important next step toward improving the management and control of gonorrhea.

GOLDEN CLINIC DAY

The annual Golden Clinic Day of the Davis Memorial Hospital, Elkins, will be held on Saturday, June 25, 1938, according to a recent announcement by Dr. B. I. Golden. Included in the list of distinguished guest speakers will be Dr. Harry E. Mock, Chicago; Dr. George K. Feen, Chicago; Dr. Fred H. Albee, New York City, and Dr. Lester Hollander, Pittsburgh.

The morning session will be devoted to clinical demonstrations, with case presentations by the staff of the Golden Clinic. Discussion will be led by the guest speakers. All meetings will be in the Hitt Memorial Nurses' Home.

The West Virginia Heart Association will hold a luncheon at noon with Dr. Oscar B. Biern, Huntington, as leader of the group. Dr. R. J. Condry, Elkins, is in charge of the luncheon arrangements. The luncheon program will be a round table discussion with the guest speakers. All physicians desiring the discussion of a specific subject are requested to communicate with Dr. Condry.

The afternoon session will be opened at 2:30 o'clock by Dr. Mock whose subject will be "Skull Fractures." The complete program for the afternoon session follows:

"Skull Fractures" by Harry E. Mock, M. D., Chicago; "Peripheral Circulatory Failure Versus Myocardial Failure" by George K. Feen, M. D., Chicago; "The Massive Resection of Bone Sarcoma with Immediate Bone Graft Replacement", illustrated with colored motion pictures, by Fred H. Albee, M. D., New York City; "Dermatologic Problems of the General Practitioner" by Lester Hollander, M. D., Pittsburgh; "Bicornate Resection of the Uterus with Abdominal Fixation for Correction by Visceral Disturbances Due to Relaxation of the Perineum," with colored motion pictures by the Golden Clinic.

Dr. John E. Cannaday, Charleston, will act as toastmaster at the banquet at 7:00 o'clock that evening. Dr. Mock will speak on "Conservative Treatment of Gall-bladder Diseases," and Dr. Albee on "Joint Reconstruction, illustrated by Motion Pictures." Following the banquet Dr. and Mrs. Golden will hold a reception in their home for all guests.

Visiting ladies will be guests of Mrs. Golden for luncheon on Saturday at 1:30 o'clock.

OBSTETRIC EXAMINATIONS

The oral, clinical, and pathological examinations for Group A and Group B applicants will be held in San Francisco, California, on Monday and Tuesday, June 13 and 14, 1938.

An informal dinner for the diplomates of this board, their wives and others interested in the work of the board, will be held at the Palace Hotel, San Francisco, on Wednesday evening, June 15, 1938, at seven o'clock. Dr. William D. Cutter, secretary of the Council on Medical Education and Hospitals of the American Medical Association, will address the group, and the successful candidates of the preceding two days' examinations will be introduced in person. Tickets, at $2.25 each, may be obtained in advance from Dr. Joseph L. Baer, 104 S. Michigan Avenue, Chicago, Illinois, or at the door. Reservations should be made in advance if possible.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

ASSOCIATE EDITORS:
J. HOWARD ANDERSON
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MATERNAL MORTALITY

By LOUIS H. DOUGLASS, M. D.*
Baltimore, Maryland

THE subject of maternal mortality is a most interesting one and has for many years commanded the attention of physicians all over the world. Many studies, both local and general, have been made; there has been accumulated a most formidable array of statistics, and enough has been written upon the subject to fill many large volumes. For example, I would like to show you a few charts of a nation-wide study made by the United States Government and quote a few figures from the same source. The first is a map of the country and shows the maternal mortality in various states for the year 1935. Maryland and West Virginia show up very well here, the only two states having a lower rate being Wyoming and Wisconsin, although several have a rate no higher than ours; namely, between 45 and 54 per 10,000 live births. Number two is a graph showing the principal causes of death, infection being responsible for 41.3 per cent of the whole; toxemias for 21.7 per cent and hemorrhage for 10.9 per cent. In contrast to these, let us for a moment examine the figures for the State of Maryland for the year just ended. The rate for the entire state was 41 per 10,000 live births, but if we exclude Baltimore, it rises to 46 per 10,000. The explanation of this is probably to be found, partly at least, in the hospital facilities in Baltimore and the fact that many of the deliveries there are planned hospital deliveries. Chart number three gives us the principal causes of death in Maryland for the year, again excluding Baltimore. This was done because it was felt that this group would be more interested in such a study than in one which included Baltimore. Looking at this we find that infection was responsible for 24.3 per cent of the deaths in contrast to the entire country's 41.3 per cent; toxemias for 20 per cent instead of 21.7 per cent, and hemorrhage and accidents for 42.9 per cent instead of 23 per cent. Thus, while we show a marked improvement in the matter of infection, we lose it entirely when we compare hemorrhage and accidents of childbirth and show practically identical figures for the toxemias of pregnancy.

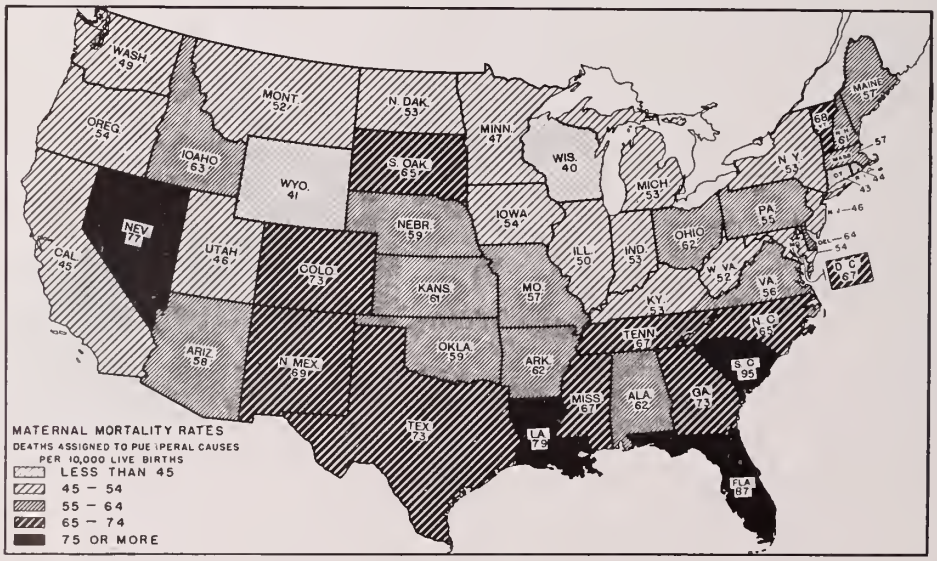
*Professor, Clinical Obstetrics, University of Maryland.

There are other figures available, but for fear of boring you they will not be given at this time. Enough has been said to demonstrate quite clearly that there are three principal causes of maternal mortality and it is of this great triad, infection, hemorrhage and toxemia that I would like to speak, and with your permission, will take them up in that order.

Infection should always be thought of as a preventable rather than as a curable condition, for in almost every instance it can be traced back to some definite break in technique. The organisms causing the condition are legion but are most frequently the ordinary pyogenic bacteria, the streptococcus, the staphylococcus and less frequently the colon bacillus. The introduction can be traced to three individuals — the doctor, the nurse and the patient herself. Vaginal examinations probably cause more than any one other procedure and should be held to an absolute minimum and in the large majority of deliveries dispensed with altogether. For them may be substituted rectal touch, and while it is admitted that at times this is not entirely satisfactory, with a little practice, sufficient information should be obtained to permit the physician to conduct the labor in an intelligent manner. Operative procedures add definitely to the risk of infection and should be undertaken only when absolutely indicated and never as a matter of convenience for the attendant. An obstetrical case is frequently a time consuming and tiring procedure and should not be undertaken unless one is willing to sacrifice much of both time and energy. Again operative procedures should not be undertaken unless the operator is capable of carrying them through to a successful conclusion. One very much neglected source of infection is the upper respiratory tracts of the attendants and it should be an inviolate rule not to attempt delivery without a mask, even though at the time there seems to be no evidence of infection.

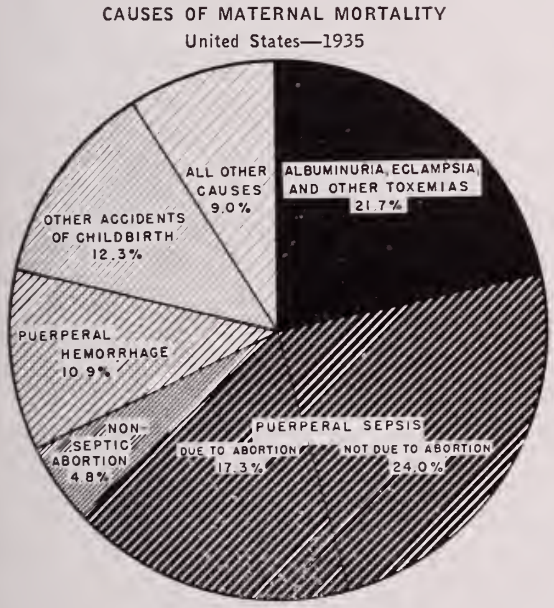
Should operative work be necessary, and even for the normal delivery, rigid technique must be observed, both as to the hands of the operator and the instruments introduced into the birth canal. The external genitalia of the patient should be carefully prepared by shaving and washing the parts with soap and water followed by a mild antiseptic. It is apparently impossible to sterilize the vagina itself and attempts to do so probably result in more harm than good. Be sure that the labor is complete and that all lacerations have been sutured and that no foreign matter remains in the uterus. Conserve blood loss, for a

MATERNAL MORTALITY IN THE UNITED STATES—1935



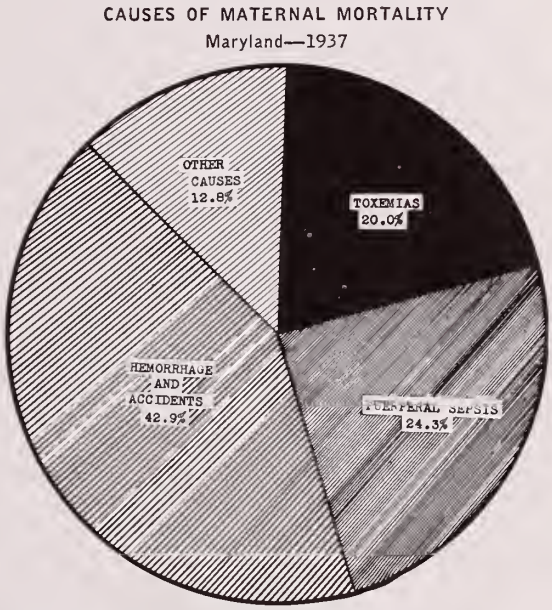
patient who is exhausted by a difficult labor or who has lost a great deal of blood has a definitely lowered resistance to infection and may succumb, whereas, if her condition be good she will show little, if any, reaction.

Should infection develop, it is to be treated by building up the patient's resistance as much as possible, keeping the uterus contracted to prevent spread and to keep it empty, and aiding drainage by postural treatment. Good nourishing food, plenty of fluids, fresh air and oxytocic drugs therefore are to be considered. In the more resistant cases, marked improvement often follows blood transfusions from suitable donors. This is no longer a major operative procedure, and can, with a little trouble, be carried out in the home. Operative procedures are, as a rule, contraindicated, and should be reserved for the rather



rare case which develops an abscess in the cul-de-sac, or some similar condition.

In the past few years there has appeared on the market a drug—sulphanilamide, which is of undoubted value in treating infections resulting from the hemolytic streptococcus, but of little use where other types of puerperal infection are concerned. It is, moreover, not an entirely innocuous drug, and should not be used indiscriminately. It would be far safer, both for the patient and for the reputation of the doctor, if its use were restricted to those cases which are proven by blood culture to be of this type of infection. When prescribed, the patient's blood should be studied daily for evidence of a dangerous reaction and donors should have been matched in advance, for a blood transfusion is not infrequently urgently needed. This should not be construed as a diatribe against the use of sulphanilamide, for it is a most



valuable adjunct, but as a word of caution only, against its indiscriminate use.

Puerperal hemorrhage, ante, intra and postpartum, annually takes its toll of life and is always an alarming and disturbing occurrence. When it occurs in the last trimester of pregnancy and before the onset of labor it is usually due to either placenta previa or premature separation of the placenta. Both of these are extremely serious complications, requiring prompt emptying of the uterus and frequently, energetic after treatment, and should, whenever possible, be looked after only in a well equipped hospital. Almost without exception, the pregnant woman is vitally concerned when she begins to bleed, no matter how slightly, and will, of her own accord, seek assistance. With placenta previa, nature is usually kind to the physician and it is rare that the first hemorrhage continues;

but it must be remembered that having ceased, it is bound to return, just when no one can say, and that some time before delivery there will be a severe and possibly fatal bleeding. The diagnosis of the condition should offer no difficulty at all and may be made with sufficient certainty to inaugurate treatment on the symptoms alone and without examination. A painless, causeless hemorrhage in the last trimester of pregnancy means placenta previa for all practical purposes, and should be sufficient to warrant transferring the patient without delay or examination to a hospital. If this simple rule is observed, and the patient hospitalized at the first sign of bleeding, much valuable time will be saved and the patient will be in condition for treatment, which is frequently cesarean section. Contrast this with the patient who arrives at the hospital almost exsanguinated after several attacks of bleeding and after having been examined vaginally one or more times and possibly having had the vagina packed under questionable technique. Not only does vaginal examination in these cases definitely increase the risk of infection, but in a fair percentage of cases it is followed by a fresh and severe hemorrhage, more of the placenta having been torn loose by the examining finger. Packing does little or no good, usually serving only to conceal the bleeding for a short time and not to check it, and to carry up infection.

METHOD OF DELIVERY

The actual method of delivery depends upon many things—the condition of the patient, the type of placenta previa, the amount of cervical dilatation and whether or not infection is suspected. The one method, which in the past has enjoyed considerable vogue but which now is considered entirely wrong, is internal podalic version followed by breech extraction and this especially if the cervix is not completely dilated. Most of the text-books of today recommend that if the patient must be delivered at home and the cervix is insufficiently dilated, a Braxton-Hicks bipolar version is the procedure of choice, although it of necessity means the sacrifice of the child. (In the year 1937 there were treated at the University Hospital 23 cases of placenta previa and of this number 16 were delivered by cesarean section and the remainder from below. In this small series there were no maternal deaths and only three babies were lost.)

PREMATURE SEPARATION

Premature separation of the placenta is frequently a much more serious complication than placenta previa and carries with it a much higher maternal and fetal mortality. In this complication, the bleeding having started, rarely ceases, but continues until the uterus has been emptied and even then it is often difficult to control. Treatment must be prompt, every effort should be made to conserve blood loss and transfusions are usually indicated. I am now speaking of the complete or major separations, those of a minor degree often occurring and requiring nothing more than a course of careful watchful expectancy. In many of these latter cases the placenta has been implanted low down in the lower uterine segment and bleeding has been controlled by the advancing child, so that the final result is good for both mother and baby. On the other hand with a normally implanted placenta which separates more or less completely, the baby is practically always lost and frequently the mother succumbs also.

Postpartum hemorrhage still continues to be a major cause of maternal mortality and it is difficult to imagine a more unpleasant position for a physician than to be in a home far removed from help in the middle of the night, with a woman rapidly and surely bleeding to death, and I assure you, you all have my heartfelt sympathy if you are ever confronted with such a calamity.

The three major causes for hemorrhage still exist, being in order of frequency: atony, lacerations and retention of foreign matter in the uterus. It is important to differentiate between these causes, for the treatment differs in each, but I am sure that you are familiar with such a differentiation and will not go

into details here. If a piece of placenta has been left in the uterus, it should be removed manually under the most careful aseptic technique; if a laceration has occurred and is bleeding it must be sutured, and if atony exists it is treated in its own manner. In suturing lacerations, the operator must be certain that the entire length of the tear is repaired, for only then can he be sure that all bleeding will be controlled, and this is often far from simple when the bleeding is coming from a torn cervix and when there is no one present to help. Yet it must be done. In treating atony of the uterus, we still depend largely upon massage of the organ and the administration of oxytocics. In the latter instance there has been some definite improvement in the last year or two and it would probably not be amiss to speak of it here. A new alkaloid of ergot has been isolated and studied, and has been accepted by the Council on Pharmacy of the American Medical Association, which body has given to it the official name of ergonovine. This alkaloid is today being marketed by several different firms under their own trade names and is called variously: ergotrate, ergoklonin and basogen. It is available in tablet or liquid form for oral administration, or in ampoules to be given intramuscularly or intravenously and is undoubetdly a powerful stimulant to uterine contraction. The great advantage which this alkaloid possesses over the fluid extract or other preparations of ergot itself is its greater dependability, for it appears to be an absolutely stable product, and the increased safety of hypodermic administration. In the past few years we have been giving pituitary extract or more particularly pitocin intravenously also, and have found that the results are most encouraging. Of course the occasional case is still seen that does not respond to any of these stimuli and packing of the uterus is necessary; but these instances are becoming more and more rare as we depend more and more upon the improved drugs and the more recent ways of administration, i. e., intravenously. When packing does become necessary, remember that strict aseptic technique is essential and that the pack, to do good, must fill the entire uterus and vagina. It has, for the past year or so, been our practice routinely to give all patients calcium in one form or another during their pregnancy, and while no figures are available at this time it is our impression that the incidence of postpartum hemorrhage is decidedly less in these individuals.

THE TOXEMIAS

The subject of the toxemias of pregnancy is such a vast one and there is so little definitely known about it that I hesitate to start talking about it when so little time can be given. However, with your indulgence I will go over some of the more important facts and findings briefly, for there still remains an appalling amount of toxemia in the country as a whole and the mortality is extremely high: 21.7 per cent and 20.0 per cent of all the deaths in the country and state respectively.

There has been little change in the conception of hyperemesis lately, except that there seems to be a growing tendency to consider all cases toxic in origin, with the symptoms greatly aggravated in some instances by the neurosis of the patient. Also when the vomiting has been present for a time there seems to have occurred considerable depletion of the glycogen reserve of the liver and the patient suffers from a definite hypoglycemia, which in turn makes the vomiting worse, so that intravenous glucose in fairly large quantities seems to be definitely indicated. The generally accepted practice is to give about 75 grams of glucose in the 24-hour period. Under the best possible treatment, interruption of pregnancy still seems necessary in the occasional case to save the patient's life, but it should not be resorted to until all other methods have failed, or the need seems urgent. And here a plea for the doctor to whom the case may be referred if hospitalization is deemed necessary. Frequently the transfer itself is a powerful psychic factor, and it is generally agreed that these case are best handled in a hospital where complete isola-

tion is possible and other methods of appeal may be carried out. Yet many a patient has had to have her pregnancy interrupted who could otherwise possibly have been treated successfully without this, simply because her physician had told her that he was sending her to the hospital for this procedure. So, when in your judgment, hospitalization is necessary, it is to be remembered that the patient should be told that she is being transferred for further treatment and not for a therapeutic abortion.

CHRONIC NEPHRITIS

Chronic nephritis as the aftermath of either an attack of preeclampsia or eclampsia, or some infection, is almost always made worse by pregnancy and the changes are permanent ones, so that the patient is left with kidneys which are more damaged than they were before pregnancy. They must be watched most carefully throughout the entire pregnancy and treated in the usual manner by diet, etc., and it is not at all unusual for the question of terminating the pregnancy to arise. There is this to be said for the procedure; the pregnant woman with nephritis who is becoming definitely worse in spite of all that we can do for her has a very small chance of carrying her baby to term, abortion or premature stillbirth frequently occurring as the result of the increasing toxemia, so that interruption is often only anticipating an inevitable outcome and saves the mother what might prove to be an overwhelming burden. Therefore when definitely indicated there is little or nothing to be gained by waiting and much may be lost. Do not by any means be too hasty and interrupt every woman who has nephritis, but do not err too much on the side of conservatism and wait too long, and above all do not hesitate to ask for consultation and advice in these cases.

It is thought that the woman with nephritis can and often does have convulsions from the nephritis and it is wrong to call such cases eclampsia, but the treatment is the same for both and will be taken up later.

Eclampsia is always preceded by the state that we call preeclampsia. When I make this statement, I know very well that there are many authorities that do not agree with me and say that it is possible for a woman to have convulsions without warning, and that these convulsions prove to be eclampsia. The only answer that I can make to this is that I have never seen such a case, although a number have come under my observation in which the attending physician stated that the patient was perfectly well until she began to have convulsions. For many years I investigated these cases and without exception I found that the patient had been having definite signs of trouble for a period of from a few days to two or more weeks. What does happen at times is that the toxemia is very rapid in its development and may begin and go on to the convulsive stage in such a short time that the patient is not seen. However, this is rare when adequate prenatal care is being given. Again it is a common practice to call any condition eclampsia that is accompanied by convulsions during pregnancy. That this is erroneous is shown by the fact that one-third of all admissions for eclampsia to the University Hospital over a period of years, proved themselves to be cases of epilepsy.

PREECLAMPSIA AND ECLAMPSIA

There is little new to be added to the knowledge you already have as to the etiology of preeclampsia and eclampsia, it still remains the disease of theories, with little proven. The symptoms remain the same, with an increase in blood pressure being the most important, because it is the most constant finding, indeed it may be the only one prior to the onset of convulsions. Albumin in the urine is found fairly late in the condition and when present may mean that there has been kidney damage. Recently much has been written upon the changes in the eye grounds in the toxemias and they are of great help to us in differentiating between the various types and also are valuable as a prognostic aid.

Treatment causes much discussion, and most large clinics have worked out a routine for which they claim good results, and while

they vary somewhat in detail, they are quite similar in that they all insist upon close supervision of the case, particular attention being paid to the blood pressure, and all feel that the pregnancy should be terminated without too much delay if there is no improvement. It has been our practice to place all patients upon a low protein, low salt diet when the blood pressure goes above 130/90 and to watch them most carefully. In addition they are purged with magnesium sulphate and instructed to drink freely of water. Should this not suffice, the patient is admitted to the hospital and put to bed where she is placed upon a milk and water diet for a maximum of three days and purgation continued. Since these patients almost always show a definite hypoglycemia, they are frequently given glucose intravenously, the dose being not less than 75 grams daily, usually in a 25 per cent solution. No insulin is needed to "cover" the glucose in these cases and none should be given. As a sedative, it has been found that 50 per cent magnesium sulphate intravenously is most satisfactory and produces no ill effects upon the child. The usual dose is two c.c. of this solution, and it has practically replaced morphia in the antepartum state.

CESAREAN SECTION

Should there be no improvement under this regime, we feel that the pregnancy should be terminated without delay, and in many instances cesarean section appears to be the safest way to carry out the delivery; the operation should be done under local infiltration anesthesia, for these women do not react well to inhalation narcosis.

If the above is adhered to, eclampsia should not develop and this is a most important point, for when convulsions do occur the picture immediately changes and the patient becomes a desperately ill person, whose chances of recovery are definitely lessened and she is most apt to be left with more or less grave and permanent kidney damage, if she be fortunate enough to live.

The treatment of eclampsia should be almost entirely conservative today, no attempts to empty the uterus being undertaken until all danger of convulsions are past. These patients make extremely bad operative risks, they take an anesthetic poorly and frequently develop a postoperative and fatal pneumonia. They are apt to bleed severely at the time of operation and have an extremely low resistance to infection. Following the conservative treatment, the mortality has shown a decidedly downward tendency and in our own clinic in the last five-year period it reached a little less than three per cent.

Sedation is insisted upon and this is obtained by the use of magnesium sulphate and more recently by paraldehyde, given per rectum. This latter drug not only serves to quiet the patient but also seems to reduce the blood pressure and we feel that it is a most important addition to our treatment. Again, as in preeclampsia, concentrated glucose is used, and no attempt made to terminate the pregnancy until there has been a complete recovery from the convulsions. We have seen patients who recovered sufficiently to be discharged from the hospital to their homes to await the onset of labor, although this is unusual. The rule is that the eclampsia will induce labor and the patient will go on to delivery, and here again it is to be remembered that they may not be given a general anesthetic. Paraldehyde is perfectly safe, as is local infiltration and with these, either alone or in combination, any indicated operative procedure can be successfully carried out.

It is felt that an apology is necessary for the length of this paper and the rather sketchy manner in which most of the subjects have been presented, but I have tried to give you the important points in as concise a manner as possible, and thank you for your indulgence.

It is much pleasanter to keep well than to get well; and with the help of scientists and doctors, who are concentrating nowadays on fighting an offensive battle, it is becoming much easier to do than formerly.

THE AUTOPSY SITUATION IN WEST VIRGINIA*

By B. S. BRAKE, M. D.
Clarksburg, West Virginia

WEBSTER'S Unabridged Dictionary defines autopsy as: "Inspection and usually partial dissection of a dead body which has been opened so as to expose important organs either to ascertain the cause of death, or, if this is known, the exact nature and extent of the lesions of the disease and any other abnormalties present; a postmortem examination; a necropsy."

A well conducted autopsy also includes the removal of pieces of tissue for microscopic study. If the coroner is doing the autopsy, or directing it, not only the cause of death, but also the manner of death is to be determined if possible. Some autopsies not only include the exploration of the abdomen, chest and brain pan, but also the spinal cord, the larynx or even the bone marrow.

EARLY AUTOPSIES

It does not seem to be known who did the first autopsy, or where and when it was done. Andreas Vesalius in the sixteenth century did a great amount of dissecting of human bodies, but his interest lay in anatomy. Morgagni in the eighteenth century was among the first to recognize the importance of postmortem examinations and to make a serious attempt to correlate autopsy findings with clinical signs and symptoms. In the first part of the nineteenth century Laennec by following his patients to the autopsy room greatly elucidated the conceptions of tuberculosis. Virchow, who lived from 1821 to 1902, aided by the improvements in the microscope which took place about the middle of the nineteenth century, advanced the idea of cellular pathology. The Pathological Institute and Museum in Berlin erected by the government at his direction contained 23,000 specimens at the time of his death. Osler studied pathology under Virchow in 1873. From 1874 to 1884 at McGill University and during the next five years at old Blockly Hospital adjacent to the University of Pennsylvania, where he was Professor of Medicine, Osler spent most of his spare time in the postmortem room, and there laid the foundation work of his great career. Koch, the discoverer of the causative organism of tuberculosis, was a pathologist and obtained much of his inspiration and his material from the autopsy room. Brehmer by his observations of the lungs of patients who died from tuberculosis noted solitary healed lesions in these lungs, wrote a thesis on "The Curability of Consumption," and founded the first successful sanitarium for treating tuberculosis in the world.

VALUE OF AUTOPSY

The value of autopsies seems quite obvious. The American Medical Association requires that hospitals approved for internship must secure autopsies upon at least 15 per cent of all patients dying in these institutions. In 1926 Henry A. Christian[1] of Harvard said: "The number of necropsies obtained on patients dying in the hospital is perhaps the best single index of the professional efficiency of the hospital, of the amount of work devoted to the study of patients by members of the staff, of the eagerness of the staff to learn, and of its teaching ability." Robertson[2] of the Mayo Clinic in a paper on postmortem examinations in 1930 stated that the percentage of permissions for autopsies is an index of the scientific spirit of any medical group. He also said that the whole staff is stimulated to more careful work when it is known that postmortem examinations will be obtained in a large percentage of cases, and that in this way the patients receive better treatment.

The autopsy furnishes the physician an opportunity for postgraduate instruction right

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at home. It enables him to see the effects of disease upon tissues and organs, to verify or find wrong his clinical diagnosis, to clarify the diagnosis if clinically it is in doubt, and to observe what diseases afflicted the patient other than the ones causing death.

An autopsy is sometimes of value to the relatives of the deceased. It may help them to collect on an insurance policy. On the contrary it may prevent them from collecting, and in that way benefit the insurance company.

To law enforcement and the administration of justice, autopsies are often of vital importance. The autopsy findings may decide the question of the guilt or innocence of the accused.

In the matter of vital statistics the postmortem becomes of paramount importance. Karsner[3] in 1927 estimated that autopsies were done on about 0.7 per cent of all the people dying in the United States. If this figure is nearly correct the cause of death as it appears on the death certificate is open to question in an entirely too large a percentage of cases.

In order to arrive at some idea about the frequency of autopsies in West Virginia, questionnaires were sent to eighteen West Virginia hospitals requesting the number of deaths and the number of autopsies in 1937. Fifteen hospitals replied. A summary of these replies is shown in Table I.

TABLE I

Hospital	Deaths	Autopsies	Autopsy Percentage
Hopemont Sanitarium, Hopemont	39	20	51.3%
The Myers Clinic, Philippi	38	14	36.8%
Camden-Clark, Parkersburg	107	33	30.8%
C. and O., Huntington	110	32	29.1%
Davis Memorial, Elkins	51	14	27.4%
Charleston General, Charleston	291	76	26.1%
St. Joseph, Parkersburg	127	32	25.2%
Wheeling, Wheeling	198	42	21.2%
St. Mary's, Huntington	176	35	19.9%
Ohio Valley, Wheeling	304	57	18.7%
St. Mary's, Clarksburg	98	10	10.2%
Cook, Fairmont	133	8	6.01%
Monongalia County, Morgantown	116	3	2.6%
Morgantown City, Morgantown	46	2	4.4%
Union Protestant, Clarksburg	55	1	1.8%

A glance at this table shows that the hospitals in Clarksburg, Fairmont and Morgantown did not do enough autopsies in 1937 to meet the requirements of the A. M. A. for hospitals approved for the training of interns. Other hospitals in the state are shown to have obtained a very good percentage of autopsies.

The data shown in Table II was gleaned from the reports on hospitals approved for training interns appearing in the *Journal of the A. M. A.*, in the years 1935, 1936 and 1937. It may be too much to expect West Virginia hospitals to equal the high percentage of necropsies shown by these well known out-of-state hospitals, but these figures ought to stimulate us to secure more autopsies here.

TABLE II

Hospital	Percentage of Autopsies 1937	1936	1935
Johns Hopkins, Baltimore	89%	80%	79%
University of Pennsylvania, Philadelphia	63%	67%	64%
Los Angeles County, Los Angeles	61%	59%	59%
Massachusetts General, Boston	50%	57%	59%
Presbyterian, New York	50%	45%	41%
Jefferson, Philadelphia	49%	55%	46%
University, Baltimore	44%	44%	37%

The question of the percentage of accuracy of clinical diagnosis as verified by autopsy findings is an important one. In the literature at his disposal the writer could find little information upon this subject. He did find that Cabot[4] reported the clinical diagnosis wrong partially or wholly in 47 per cent of 3000 autopsies; that Karsner[5] showed eight per cent error in major diagnosis; that Cleland[6] in a series of 230 autopsies found the clinical diagnosis correct in 53 per cent, and that in 16 per cent the diagnosis was wrong or that no diagnosis was made; that McNamara[7] in 100 autopsies found the clinical diagnosis wrong or not made at all in 22 per cent. Dr. Tracey B. Mallory of The Massachusetts General Hospital, replying to an inquiry from the writer, stated that he reviewed 1000 autopsies last year and listed a primary and a secondary cause of death in each case as one has to do in making out death certificates. He found that one or the other of the major diagnoses was significantly

wrong in 25 per cent of the cases. An exact figure of the percentage of error in the primary diagnosis he did not have available, but he believed it would run between 10 and 15 per cent.

In order to obtain further data upon this question we again wrote to the West Virginia hospitals which replied to our first questionnaires and asked for the percentage of agreement between the major clinical diagnoses and the autopsy findings. Nine replies were received and the interesting information contained therein will be found in Table III.

TABLE III

Hospital	Major Clinical Diagnosis Verified by Autopsy	Major Clinical Diagnosis Found Wrong at Autopsy
Hopemont Sanitarium	95.5%	4.5%
The Myers Clinic, Medical Cases	66%	34%
The Myers Clinic, Surgical Cases	80%	20%
The Davis Memorial	71.4%	28.6%
Charleston General, Dying in 2 days	60%	40%
Charleston General, Dying after 2 days	76%	24%
St. Joseph	60%	40%
Cook	57%	43%
Morgantown City	50%	50%
St. Mary's, Clarksburg	10%	90%
Union Protestant	0	100%

The above figures do not reflect the comparative diagnostic ability of the members of the staffs of these hospitals, but merely show the percentages of accuracy and error in the cases that came to autopsy in these hospitals in one year. One hsopital had only one autopsy, and it happened that the clinical diagnosis was found wrong in this case. It seems probable that the percentage of error in each of these hospitals would have been lower if all patients dying in the hospitals in this particular year had been autopsied. We presume that many of the cases that were subjected to necropsy presented some unusual diagnostic difficulties. Some of them were autopsied because no clinical diagnosis had been made. Nevertheless it is true that, leaving the figures for Hopemont Sanitarium out of consideration, this table represents a total of 144 autopsies in which the major clinical diagnosis was found wrong in 56, or 38.9 per cent of these cases. If no postmortems had been done last year in these hospitals, the death certificates of 56 of these 144 patients would have been worthless as records of vital statistics. If the signing of such documents is to be elevated beyond the status of guessing, we must have more autopsies.

How are we to obtain more autopsies? In the first place we must sell the idea to ourselves; we must want more autopsies. In this community very little effort is given toward obtaining permits for autopsies. Most of us are busy through the day, and patients are apt to die at night when we are reluctant to get out of bed and seek the permit. Then too often the physician fears to ask for an autopsy lest such a request cause doubt and suspicion in the minds of the relatives. I believe this fear is unwarranted. On the contrary, I believe that a postmortem examination elevates the physician in the estimation of the relatives. Reasonable people do not expect infallibility. If they feel that the physician has earned a right to this privilege through faithful and skillful effort to save the patient's life, if the request is tactfully made, if proper emphasis is laid upon the importance of such examinations in order that we may have better doctors, a large percentage of permissions may be obtained.

DIGNITY ESSENTIAL

The postmortem should be conducted with dignity and decorum. The hospital should have a room built especially for and dedicated to this purpose. The floor, the walls, the lights, the plumbing and the table should be on a parity with that of the operating room. Over its portal should be this inscription: *Hic mortui vivos docent.* (Here the dead teach the living.)

It occurred to the writer that we might obtain more autopsies if physicians freely gave permission for autopsies upon their own bodies. If you can say when asking for permission for a necropsy upon your patient that you have executed a permit for an autopsy upon yourself, and that your spouse also has given written permission for this ex-

amination of yourself you have greatly strengthened the ground for your request. If you could also say that all the doctors on the staff of your hospital, or all the members of your county medical society, or 50 per cent of them, had given permission for autopsies upon themselves you would be greatly fortified in your claim.

PERMISSION IMPORTANT

It is very important that permission from a proper relative be obtained before an autopsy is done, and it is better for it to be in writing and witnessed. In most states the proper person to give this permission is ordinarily the surviving spouse. There being no surviving spouse, mature children are next in authority. Then follow in order minor children, parents, brothers and sisters, aunts and uncles, cousins, nephews and nieces. It appears, however, that in West Virginia there is no statute governing postmortem examinations.

If the deceased is suspected of having come to his death as a result of violence or foul play, or if he is thought to be a suicide he becomes a coroner's case. In most states the rights of a coroner or medical examiner to perform an autopsy are defined by statute.

In assembling data for this paper the writer was very much surprised by a communication from Dr. F. C. Hodges of Huntington. In this letter Dr. Hodges stated that he had been surprised to find very recently that there are no postmortem laws in this state, and also to find that the duties of the coroner are so vaguely defined that there is no place where it is stated that he has authority to perform a postmortem examination. He deplored this situation and thought that legislation should be enacted covering this matter. He thought it ought to be modeled after the laws of New York. Thereupon the prosecuting attorney of Harrison County, Mr. J. Philip Clifford, was asked for an option upon this matter. He said that he had always acted upon the assumption that our statutes authorized the coroner to do autopsies in proper cases, but after he looked the matter up he said that he was surprised to find that there is nothing in the Code of West Virginia giving a coroner permission to perform an autopsy. The only authority he could find anywhere was in the general, or common law, and this authority merely is a part of an edict issued by Edward IV about 500 years ago.

In view of this rather startling disclosure it appears that the West Virginia State Medical Association should sponsor a bill setting forth the coroner's duties and defining his authority to perform autopsies. Mr. Clifford also thought that such a statute should be enacted by the legislature.

CONCLUSION

1. Hospitals in the lower Monongahela Valley in West Virginia are not getting enough autopsies to meet requirements of the American Medical Association for hospitals for the training of interns. Other West Virginia hospitals seem to show a very good percentage of autopsies, but all are falling far short of their possibilities.

2. The high percentage of error in clinical diagnosis in the autopsied cases points to a crying need for more autopsies if we are to have better vital statistics, and if we are to have better physicians.

3. There seems to be no statutes in West Virginia governing the matter of autopsies in general and setting forth the coroner's rights and duties in the performance of autopsies. Suitable legislation should be enacted to correct these legal deficiencies.

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THE TREATMENT OF BENIGN UTERINE HEMORRHAGE BY IRRADIATION

By V. L. PETERSON, M. D.
Charleston, West Virginia

THE radiation treatment of benign uterine hemorrhage is not a new procedure. Many thousands of cases have already been reported, so that the status of radiation in the treatment of these conditions is known with fair accuracy. This resume of several articles recently published on this subject is not meant to be a comparison of radiation, surgery and medical treatment. Some cases are found suitable for one method of treatment, some for another. Each method has its rightful place in the care of these patients.

Uterine fibromyomas are present and probably contribute to uterine hemorrhage in the greater percentage of cases. Ewing states that "the essential etiologic factor in uterine myoma is an embryogenic disturbance of the structure of the uterus due to a disturbance in the formation of the tubes, uterus and vagina from the Mullerian ducts which split off the Wolffian bodies at an early period and fuse to form the genital tract. The relation of certain early myomas to the blood vessels of the uterus has long impressed many observers and suggested that uterine myomas arise from a disturbance in the growth of blood vessels from the walls of which the uterus and vagina originally receive their muscular tissue. Rosger, Sobatta and others have traced the development of early myomas from the vessel walls and concluded that the blood vessels control the origin and growth of uterine myomas."

ACTION OF RADIATION

Radiation acts chiefly on the ovary and in adequate doses represses the formation of the Graafian follicle. It so acts because the germinal epithelium is among the structures most sensitive to radiation. There is, in addition, a certain beneficial action on the fibroid itself since these tumors respond somewhat better to roentgen ray as compared to radium therapy. In addition, the action of radium is more local, producing a fair degree of local irritation within the uterus. However, radium is indicated in certain menorrhagias secondary to a hypertrophic endometrium. The radium dosage can be controlled within the uterus without producing a permanent menopause through ovarian action. This is of definite advantage in the young woman who has failed to respond to medical treatment.

These patients may present themselves at any age following the onset of the menstrual cycle. Many can be relieved by a curettement of the uterus, bed rest and medication. Failure will result less often if each patient has a comprehensive general examination as well as a curettement of the uterus with an examination of these scrapings by a pathologist.

SOME CASES NOT SUITABLE

There is a group of cases unsuitable for radiation therapy consisting of those patients having a large fibroid producing pressure symptoms, degenerating, cystic or pedunculated fibroid; fibroids occurring in women of child-bearing age, in which it may be possible to remove the fibroid, leaving the uterus intact; rapidly growing fibroids in which there may be a question of a sarcoma being present; in the presence of an ovarian cyst; or in patients showing extreme mental depression. In addition, no woman in the child bearing period and having no tumor should be subjected to radiation until all other methods of treatment short of hysterectomy have failed to effect relief. Radium is contraindicated in the presence of an inflammatory lesion; roentgen ray may aid such a lesion.

The indications for irradiation therapy of benign uterine bleeding may be listed as any case not belonging to any of the above groups and yet showing profuse or uncontrolled

bleeding from the uterus. The exception might be cases of thrombocytopenia with purpura; these cases should have a course of therapy over the spleen and such other treatment as is indicated by the severity of the purpura.

QUANTITY VARIES

The quantity of roentgen ray or radium will vary with the individual case. I use 200 kilovolts, .5 millimeter of copper, one millimeter aluminum filter at from 50 to 70 centimeters target skin distance; a 10 x 15 centimeter portal to the anterior and posterior pelvis, with the beam directed into the ovaries and uterus. Two hundred to 300 roentgen units are given to a field each day. A total course usually requires from four to six days, delivering about 600 roentgen units into the ovaries or between 600 and 900 roentgen units to each portal. Occasionally a lateral field is employed in an obese woman or if the irradiation follows an abdominal operation. The dose is not large each day; this eliminates to a great degree any nausea or discomfort during the treatment. The menstrual cycle will cease in from four to eight weeks in women nearing the menopause as a result of this amount of therapy. Approximately 60 per cent of this dose is given if temporary cessation of the menses is all that is desired. It is in this group that radium can be used to a better advantage; 400 to 800 mg. hours with one mm. of platinum, one mm. of aluminum, or rubber filter being used. Twelve hundred mg. hours will usually produce a permanent menopause in women over 35 years of age. It is wise to caution a younger patient against becoming pregnant during the first six months following the treatment. After this period it is safe with no danger of deformity to the resulting infant. It is of the utmost importance to be accurate with the dosage and also to inform the younger patients that at times a permanent menopause may result from the smaller dose of irradiation.

Irradiation is used to the best advantage in the treatment of menorrhagia occurring at or near the menopause. Following the treatment the menopause symptoms may be more acute; however, they do not last as long, seldom extending over a few weeks. Should the symptoms be severe, medication such as thyroid and iodine, intramuscular estrogen or irradiation of the pituitary will give suitable relief.

A review of the literature reveals an incidence of complete relief from the menorrhagia, varying from 94 per cent to 100 per cent. The lower percentage occurred in a group that did not have a study of the uterine scrapings in each case; slightly over two per cent later developed or presented themselves with cancer of the uterus. The group of cases treated by myself has not been followed a sufficient time to justify reporting the results; however, I have treated over forty patients during the three years preceding this last year. I follow them until their symptoms clear, then ask them to return at any time the slightest bleeding recurs. None have returned with evidence of cancer and none have required surgery later. No patient has complained because of the menopause symptoms, at least these symptoms have not been severe.

CONCLUSIONS

From a survey of the literature on this subject and from personal experience the following conclusions may be deducted:

1. That 98 per cent of these patients who have no contraindications to this method of treatment can be cured by irradiation.

2. The degree of disability and the length of hospitalization is markedly reduced in these cases.

3. That women should not be allowed to suffer discomfort for months or years while establishing the menopause, when by this method of treatment it can be established safely in from three to six weeks.

4. That there is no permanent bad effect on the sex life resulting from the treatment. Any change present is psychic in origin and is usually a slight increase, temporary in nature. When there is a decrease the patient may be assured that it will be for a short period only.

5. That cancer is no more frequent in this group of patients than in a similar group of women of the same age.

There is one additional point that should be called to the attention of the profession; that is the beneficial effect produced as the result of sterilization of women in the premenopause age having cancer of the breast. A complete sterilization should be produced in each of these patients. This should include all patients under fifty years of age. This beneficial effect on the sex organs may account for an apparent decrease in the number of patients treated for menorrhagia returning at a later date with uterine cancer.

6. These patients should have a curettement. The glandular tissue obtained should be examined by a competent pathologist.

310 Medical Arts Building.

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INFLUENZAL MENINGITIS SUCCESSFULLY TREATED WITH SULFANILAMIDE

By THOS. G. FOLSOM, M. D. and KEITH E. GERCHOW, M. D.
Huntington, West Virginia

SULFANILAMIDE has been used extensively in various diseases since its introduction. The treatment of meningococcic meningitis with sulfanilamide is now a popular and successful method. Scattered reports of streptococcic meningitis treated successfully with sulfanilamide have been present in the recent literature. One of us previously reported a case of streptococcic meningitis treated successfully with this drug in the January, 1938, issue of the WEST VIRGINIA MEDICAL JOURNAL. This paper presents a case of influenzal meningitis treated successfully with sulfanilamide.

CASE REPORT

C. W., a white male, age 10 years, was admitted to the Chesapeake and Ohio Hospital, December 8, 1937, with the chief symptoms of convulsions, fever, and joint pains. Onset of the illness was two days previous to admission, with an upper respiratory infection and generalized malaise. The following day the child began to vomit and toward evening had his first convulsion. At this time hospitalization was advised. Otherwise the history was essentially negative.

Upon examination, other than signs of an acute upper respiratory infection, the only positive physical findings were those associated with a meningitis.

Lumbar puncture revealed a purulent spinal fluid under increased pressure. The cell count was approximately 10,000 with a preponderance of polynuclears. The smear revealed a small gram negative diplobacillus resembling Pfeiffer's influenzal bacillus. Subsequent cultures also produced the same organism.

Wassermann and Kahn tests on blood and spinal fluid were negative.

The urine was negative on all examinations. To save time and space the blood and

spinal fluid findings are presented in the following tables.

TREATMENT

Cisternal and lumbar punctures were done each morning and as much fluid as possible drained off. Spinal irrigation with normal saline was then carried out, washing from the cistern needle downward when possible. One per cent sulfanilamide in normal saline was introduced into the cisterna magna after the irrigation, the amount being 10 c.c. to 20 c.c. less than the quantity of spinal fluid removed. In the evening, lumbar drainage only and a similar introduction of one per cent sulfanilamide were done.

The spinal fluid findings have been tabulated and record the patient's progress. The above procedures were carried out until negative spinal fluid smears and cultures were obtained.

Prontosil (10 c.c.) was given daily intramuscularly until the patient was able to retain sulfanilamide by mouth. The oral administration of sulfanilamide was gr. v every four hours. Further treatment was only supportive and symptomatic. The sulfanilamide was discontinued when the spinal fluid became sterile.

COURSE IN HOSPITAL

The child did not improve for the first five days but then began to show a favorable response. At this time, however, he was quite uncomfortable because of an arthritis, the elbows and knees being swollen, stiff, and tender. Salicylates, local heat, and fixation of the extremities soon relieved this intercurrent condition. During the remaining hospitalization, it was necessary to institute treatment for round worms and the evident secondary anemia.

BLOOD:

Date	12-9-37	12-15-37	12-20-37	12-27-37	1-3-38
Erythrocytes	3,160,000	3,660,000	2,220,000	2,800,000	3,610,000
Leucocytes	21,900	18,200	12,000	10,500	
Hemoglobin	70%	65%	55%	50%	70%
Mononuclears	9	12	16	35	
Transitionals	1	7	6	4	
Polynuclears	90	81	78	61	

SPINAL FLUID

Date	Appearance	Pressure	Cell Count	Smear	Culture
12- 9-37	Cloudy	Increased	10,000 polys.	Pfeiffer's Bacilli (Influenzal)	Pfeiffer's Bacilli (Influenzal)
12-10-37	Cloudy	Increased		Positive	Positive
12-11-37	Cloudy	Increased		Positive	Positive
12-12-37	Less cloudy	Decreasing		Positive	Positive
12-13-27	Translucent	Decreasing		Negative	Positive
12-14-37	Clear	Slightly increased	88	Negative	Negative
12-15-37	Clear	Slightly increased		Negative	Negative
12-16-37	Clear	Normal	130	Negative	Negative
12-18-37	Clear	Slightly increased	92	Negative	Negative
12-20-37	Clear	Normal	45	Negative	Negative

The patient's temperature reached a normal level December 24, 1937, on the 17th day after admission. The child was dismissed January 4, 1938, in good condition and has since remained well. No sequellae were noted on discharge.

Since treating this patient, two cases of Friedlander's meningitis, and one case of staphylococcic meningitis, secondary to an empyema, have been treated in the same manner. All three of these cases terminated fatally. The staphylococcic meningitis was the only case in the three which showed any degree of response, and this was only temporary.

To the reported cases of meningitis treated successfully with sulfanilamide, we add a case of influenzal meningitis treated successfully with this drug.

503 Professional Bldg.

CONTACT ULCER OF THE LARYNX*

By WES. C. THOMAS, M. D.
Huntington, West Virginia

LARYNGOLOGISTS, for a long time, have felt that simple nontuberculous, nonsyphilitic, nonmalignant erosions of the larynx were of sufficient importance to have a place in our works on laryngeal diseases, but not until 1928 when Chevalier Jackson's first description of contact ulcer of the larynx was published did the profession venture to make a diagnosis of simple ulcer of the larynx. The definition for this lesion, I quote from Dr. Jackson's original description.

"Contact ulcer is the name I have given to superficial ulceration occurring on one or both sides of the larynx posteriorly; the ulcerated surface coming in contact on phonation with that of its fellow of the opposite side — the latter being ulcerated or not according to whether the ulcer is monolateral or bilateral."

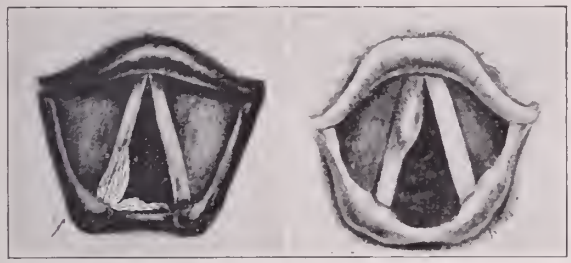
The condition is not rare, since it is evident that possibly two or more cases will show up in a year's routine work of the moderately busy otolaryngologist's practice. The milder cases are no doubt overlooked, since they heal spontaneously when, for one reason or another, the patient's resistance is improved or guided by slight pain or discomfort on talking, he is led to decrease his smoking and drinking or limit his vocal work. Measures generally used for chronic laryngitis may be expected to heal the milder cases without complete vocal rest and the alteratives usually given in cases of suspected syphilis would accomplish the same result making a certain differential diagnosis somewhat doubtful. The larger lesions cause pain, strangling and coughing and are easily mistaken for malignancy or syphilis and may be mistaken for tuberculosis.

Excessive use of the voice seems to be the chief etiological factor because the severe cases are most often seen in persons using the voice a great deal and also because of the fact that cure of anything except the mild cases is usually impossible, without complete rest of the voice. Chronic laryngitis is present in nearly every case and must be mentioned in discussing the etiology. The ulcer and chronic laryngeal inflammation may be due to the same cause. The real cause may be allergic or secondary to upper respiratory infection.

According to Dr. Jackson, specimens show only chronic inflammation with ulceration. No specific pathologic characteristics have been found. Bacteriologically, the lesion is frequently accompanied by Vincent's organisms. The ulceration is usually shallow, accompanied by very little edema and induration. In cases of long duration the arytenoid cartilage may be involved and become necrotic.

*Read before the Medical Review Society, Huntington, West Virginia, January 6, 1938.

Hoarseness, or complete loss of voice at intervals over a period of weeks is usually noted in taking the history. Cough and constant discomfort in the larynx and later, loss of voice, pain on attempted phonation, and strangling and cough, worse at night, are also symptoms. In some cases pain is a predominating symptom from the beginning and radiates to the ear of the affected side.



A B

A—Early tuberculosis of the posterior end of the vocal cord and commissure, not ulcerating. B—Early carcinoma of the vocal cord. From Jackson & Coates' book on The Nose, Throat, and Ear and Their Diseases.

We must make every effort to be correct when we make a diagnosis of contact ulcer of the larynx, since we have three such diseases as cancer, syphilis and tuberculosis to eliminate, and on the other hand, we want to give the patient and family physician the benefit of a correct diagnosis when a benign lesion is the cause of symptoms. Many cases of this disease have undoubtedly been incorrectly diagnosed because there was no other alternative for the average laryngologist, but since we have the condition described and symptoms outlined by such an observer as Dr. Jackson, we should study each laryngeal case coming before us with the simple ulcer in mind. Superficial ulcers involving the posterior end of one or both vocal cords and common sense should lead one to consider the advisability of conservative treatment. If after a period of several weeks of rest the ulcer has not improved, a biopsy can do no harm and may be expected to promote healing if the ulcer be the contact type. If the laryngoscopic appearance of the ulcer is worse after eight or ten weeks of absolute vocal rest, cancer or tuberculosis is to be strongly suspected. With the laryngeal mirror the ulcer is seen only on inspiration. On phonation it is in contact with the opposite side and only the slightly thickened border of the ulcerated surface can be seen.

The prognosis is good but the process of healing is very slow. The patient must be convinced that simple treatment with absolute vocal rest over a period of time is what the condition calls for. As above stated, a biopsy can do no harm but the cautery and irritating drugs are to be avoided.

The vocal rest is of first importance in treatment. The patient must not be allowed to speak or whisper. He must carry a pencil and tablet at all times and express all his thoughts by written instead of spoken words. All irritant applications and inhalations should be avoided. The use of tobacco and alcoholics should be reduced but need not be prohibited altogether.

Patients who work in a dusty or irritating atmosphere should change occupation or wear masks to eliminate the irritant. Allergic tests should be made, especially for dust, feathers, etc. Some advise excision of necrotic tissue in severe cases but it is my opinion that rest cure and hygiene will cure all cases.

Contact ulcer of the larynx. From "The Larynx and Its Diseases" by Dr. Chevalier Jackson and Dr. Chevalier L. Jackson. Advanced cases of this type are frequently mistaken for malignancy or tuberculosis. Reproduced by permission.

Since reading the original article on this subject, I have seen several cases and wish to report three of the most interesting.

Case 1: A traveling salesman, thirty-six years of age, was first seen in January, 1931. He is married and has two children, one seven and one eleven, living and well, none dead. His wife has had no other pregnancies. He

had a severe case of scarlet fever at 10 years of age and was sick for several weeks. Had measles and whooping cough of average severity and has had no other illness or injury except influenza in 1919. There is no tuberculosis or cancer in his family.

He complained of hoarseness for three months and some pain on use of the voice. A few times he had awakened at night coughing and these attacks were followed by increased hoarseness and pain for a few days. He had a tonsillectomy ten years ago and about that time he had frequent attacks of laryngitis but for several years he has been free from laryngeal trouble until the present attack. He seems to be rather fond of talking and used considerably more words than necessary in giving me his history and describing his symtoms. He had been seen by his nearest laryngologist who advised blood study, Wassermann, and chest examination. This was done by his family physician, who told him that he could find no defects and advised him to return in a few weeks for recheck but neither of these men advised vocal rest with emphasis.

ULCERATION FOUND

On mirror examination of the larynx a rather large ulceration was seen on the mesial surface of the right arytenoid eminence involving the posterior commissure with very little thickening of underlying tissue. The contact surface of the opposite arytenoid was swollen but not ulcerating. On phonation, the appearance of the larynx was normal. He had a small amount of postnasal discharge. The tonsils were small and appeared to be better than the average tonsil though the anterior pillar was much redder than the adjacent membrane. The nasal chambers were clean and turbinates and membrane normal in appearance. The septum was slightly deflected to the right. Anterior sinuses were clear on transillumination.

I made a diagnosis of contact ulcer of the larynx and gave him an alkaline spray to clear the posterior nasal chambers and nasopharynx and advised with considerable emphasis, complete vocal rest for two months. He arranged for leave of absence from his business duties for three months and followed my advice. When he returned in ten weeks, the ulcer had completely healed with no deformity and the chronic laryngitis was much improved. He was advised to return to work and use his voice only when he had something to tell and cut it down to a minimum then. He was last seen in 1934 and had had no further laryngeal trouble.

Case 2: A female teacher 32 years old, single, first seen in 1933. She was an only child. Her mother died of pneumonia in 1911 and her father died in the influenza epidemic of 1918. She was well nourished and her physical appearance was normal. She was very energetic and seemed to live under high tension. She was very fond of teaching and very fond of talking and seemed to take great delight in giving a detailed account of her symptoms.

Her chief complaint was complete loss of voice for two months, aching in the throat on attempted use of voice and some cough at night. All blood tests for syphilis were negative. Physical examination by one of our careful internists showed no tuberculosis or other defects. Tonsils were removed one year ago and nasal chambers clear, nasal sinuses negative. Mirror examination of the larynx showed a large superficial ulcer involving the posterior commissure, the arytenoid prominences and extending into the ventricles. There was no thickening of surrounding tissue or large blood vessels leading up to the ulcer. However, on account of the size of this ulcer, I was slow to make a diagnosis of contact ulcer and advised rest in bed as well as somplete vocal rest, and no local treatment.

TREATMENT

After three months' rest she returned, and the ulcer was much reduced in size. There was still an open ulcer at the posterior commissure and the arytenoid cartilage was exposed on the right. I now felt sure I was dealing with a contact ulcer and advised a further period of vocal rest with very limited

physical exercise. She returned to her home in the central part of the state. During the next four months she did nothing but take the rest cure and pray that my diagnosis was correct and the several physicians who had told her she must have tuberculosis were wrong. The ulcer continued to improve and no chest symptoms developed. The process of healing required nine months, and left a considerable scar and a very husky voice. She was last seen in September, 1937, with no complaint except that she was somewhat despondent because of permanent damage to her voice. Movement of the posterior ends of the vocal cords is hampered by scar tissue. On this visit her chest was examined again by a competent roentgenologist and an internist and still found to be negative.

Case 3: Saleslady; 54 years old; married. Her husband has been an invalid for several years on account of an injury. She worked during the day and read aloud to her husband during the evening and during the remainder of her hours awake she talked just for the love of it. She was first seen March 10, 1936.

Family History: Her father died at 62 years of age from Bright's disease and her mother at 74 years of age of heart disease. A sister and brother died in infancy, cause unknown.

HOARSENESS FIRST SYMPTOM

Her present trouble began three months previously with hoarseness which has grown constantly worse since. Sometimes there was a slight soreness on swallowing, no pain on talking, no cough or strangling. She has suffered from shortness of breath for a few years.

She was well nourished and her appearance was that of health. In taking the history in this case, one first noticed that her voice had been overused. She would talk at great length on minor details and repeat several times. On examination of the nose and throat, the sinuses were found to be clear, the nasal chambers clean and normal. Tonsils had been removed several years previously. The lymphoid tissue on the base of the tongue was somewhat inflammed and very thick. Large follicles in the posterior wall of the nasopharynx and thickened lymphoid tissue behind each posterior tonsilar pillar were noted. Mirror examination of the larynx showed a large ulceration at the posterior end of the vocal cords involving the commissure and the inner surface of the right arytenoid. The ulcer was superficial but there was considerable edema of the arytenoids.

EXAMINATION

She had a thorough physical examination by one of our most careful internists who could find no signs of tuberculosis but found she had an aneurysm of the aorta. Blood tests for syphilis were repeatedly negative as was the spinal fluid. Hoarseness occurs in cases of aneurysm of the aorta when the aneurysm produces enough tension on the left inferior laryngeal nerve as it comes behind the aorta and this fact seemed to lead the family physician in this case to the opinion that this was the cause of the hoarseness. There was no paralysis, however, adduction of the cords was complete and normal. The edema of the arytenoids and surrounding tissue was the cause of the hoarseness.

A diagnosis of contact ulcer was made and rest treatment advised. This patient was surprised to learn that her trouble was to incapacitate her totally for even a short time. The sole support of an invalid husband, she was much depressed when told that she must arrange for at least three to four months without the use of her voice. Her employer, appreciative of her long faithful service, agreed to give her work which could be done in silence until her condition improved. She was advised to accept this offer and follow instructions given by her family physician, intended to improve her general condition. After two months of vocal rest the appearance of her larynx was much improved though hoarseness persisted. The rest cure was continued four weeks at the end of which time the ulcer had healed, the voice much improved and she was a much happier person when she was about to be convinced that she was not tuber-

culous, as she had previously been told. She was last seen in November, 1937, filling her position as saleslady with normal voice and normal habits, except she still remembered my advice to use the voice very little when she was not at work.

It would be a grave mistake to mistake syphilis, cancer or tuberculosis of the larynx for simple contact ulcer, and treat any one of them accordingly. On the other hand, the patient with contact ulcer will be very happy and much appreciative if we study his case properly and be sure we are correct before we tell him definitely he is tuberculous.

SCHOOL PROGRAM PLANNING

By BRUCE H. POLLOCK, A. B., M. D., C. P. H.*
Point Pleasant, West Virginia

SCHOOL health supervision first came from France. In the year 1837 by a royal ordinance this duty was imposed, but no adequate systematic school medical inspection was done until 1844. The first supervision in this country followed that of France by fifty-seven years, or started in Boston in 1894. From there it gradually spread over this country and Canada. The spread has been gradual and with constant improvement from year to year. More rapid progress has been made in city districts than in rural districts, and even yet there is a tendency to slight the rural areas because of inaccessibility due to bad roads and the lack of proper equipment.

There are certain objectives which should be striven for in any school program. An effort should be made on the part of the community through authorized agencies to condition the school child's life so that he or she may attain the fullest and most perfect health possible. This must include also the mental, emotional and social as well as physical health even to the correction of remediable defects and the prevention of disease by immunizations, or by such other means as may be at the health department's command. At the same time the city and rural communities become acquainted with the health department personnel.

There are certain preliminary procedures which should be included in an outlined program. It is necessary where there is an active medical and dental society to have a common understanding with them as to the examination of school children and as to what the scope of the immunizations will be. If possible, the family physician should do these before the child enters school, at the same time giving attention to types of deviation from the normal and the possibility of corrections. There must be an understanding also of special clinic limitations.

COOPERATION

An absolute essential is the assistance and good will of the county school administration, the parent-teachers' association and the general population through the press and public meetings. This must not be neglected if the success of the school health program is to be assured. To gain added prestige for the program there must be appointed energetic health committees of laymen in each school district.

A map may be obtained from the superintendent of schools showing the location of each school and the time all schools in the county open and close. Information may also be procured as to the size of each school, holidays observed in the county along with a list of all teachers and dates of teachers' meetings. If possible a record of all absentees and the cause of such absences should be obtained.

Work schedules must be prepared at least a month in advance in order that all schools in which the program is to be carried out may be notified as to the date, time, and scope of

*District Health Officer.

the work to be done. In preparing the schedule consideration must be taken of the distance, condition of the roads, weather, amount of work which has been done previously, the health conditions in the district, and the local economic conditions, with any other data that may affect the schedule.

The staff itself should go over the schedule and work it out thoroughly so that there will be no lost time once the work has started. There must be efficient team work among all concerned or there will be a great deal of lost time and the schedule will "bog down."

THE TEACHER'S PART

Mention should be made of the rôle the teacher will play in a successful working schedule. She must be free of all communicable diseases. She should have a Wassermann test. All teachers should have their chests x-rayed and be tuberculin tested. All should certainly have smallpox and typhoid vaccination during the prescribed years. In many cases it is also better that they be Schick tested and in some areas Dick tested and all positives properly subjugated to control measures. The better teacher has had health education in her college training and should practice all approved health habits as an example to the children. She should be provided with up-to-date, authentic health literature and any other information along these lines which the county health unit feels she may need.

A simple, comprehensive communicable disease chart should be provided. The teacher can place all identifying information on the school examination records before the visit of the health department. She can also report any unsatisfactory health conditions in the school and community. She will be held responsible for obtaining evidence of vaccination on entrance to school. She can and should do screening of school children, reporting those with defects to the county health department.

A preliminary visit of physician and nurse should be made where practical to the schools to gain the confidence of the children and in this visit no bags or instruments should be displayed. Many times confidence gained at this time will make the program run more smoothly and the children will become interested in the health activities.

The physician and nurse in the examination of the child has certain responsibilities to the child, to the parent, to the medical profession, and to the community. An examination of the school child in the presence of the parents is highly desirable and the attendance can be helped a great deal by the active citizen health committees which have been appointed.

The examinations should be frequent enough that all children in the first, third, and sixth grades are examined. Hence, each child will receive three examinations before leaving the elementary grades. This is not always practicable, especially in one room schools. In many of the districts there is too much territory for the health officer to cover and in these districts only a part of each county can be covered yearly. Wherever possible a private room or booth is desirable because as a rule, children are self-conscious, particularly if there is some defect. In addition, unless privacy is secured the child cannot be completely undressed. In many places the child cannot be undressed because of lack of heat in the winter or because that community has not as yet learned the real value of an examination in which the child is stripped. It is much easier to strip boys than girls and yet the examination will suffer materially unless the child is stripped. The amount of time alloted to each child during the examination should not be greater than from eight to fifteen minutes.

EXAMINE CAREFULLY

All physicians doing mass examinations are prone to skip over the child with great rapidity and will usually miss some defect unless particular attention is given to the examination. The physician should be impressed with the fact that even though he is doing many examinations a day he may educate the child by the careful examination which he owes to the child and his parents.

In addition to the identifying data and history on the examining card the examination should be recorded in code to hasten the examination and not to allow the child to know his defects until such time as it is possible to talk to the parents or to write to them about the recommended corrections. It is always of doubtful value to give the child the slip to take home to his parents. The examination should include the condition of the scalp, hair, eyes, hearing, vision, nose, throat, tonsils, teeth, thyroid, cervical glands, posture, deformities, nutrition, and skin. The value of an examination of the heart and lungs is limited to the finding of a few abnormal hearts and a few moderately advanced cases of tuberculosis. In addition, all boys should be inspected for inguinal hernia, phimosis or redundant prepuce, and undecended testicles. All ears should be examined with an approved otoscope. The usual method of testing hearing is impractical unless an audiometer No. 4-A is available. The teacher who associates with the child each day is far more apt to know whether the child has defective hearing then the examiner. Abnormalities should be referred to the family physician.

SPECIAL EXAMINATIONS

Occasionally there may be need of special examinations of teachers, athletes, backward students, students with mental defects and so-called problem children. These last two should, where possible, be referred to a competent psychiatrist who will delve into their home life and background. Following the recommendations of the examiner and the psychiatrist special classes should be set up for children with low mentalities and with defects of hearing, vision, heart, chest and cripples. Such schools have made excellent strides within the past few years and the teaching personnel are especially trained for their work.

Records of the inspection should be made for permanent office files, the family physician, schoolroom wall chart, and the parents. Even if there is no deviation from the normal, the parents must be notified.

The function of the nurse in the schedule is to assist the health office with all inspections and immunizations and to fill out records and reports. Previous to the examination she should make home visits to elicit the cooperation of the parents, and after the examination she should make visits to see that the defects are corrected. She must in addition quarantine and release cases from quarantine with the approval of the health officer. She can do a great deal of good in creating a better understanding between parents, teachers and the health department. She can distribute appropriate literature to the parents and investigate suspected cases of communicable diseases; she can hold hygiene classes and demonstration for pupils and parents; instruct the teacher in health measures including morning inspection. She will do her school visits for the purpose of checking on health habits, detection of infestations and communicable diseases and distribute literature at the schools and check the previously reported defects to see if they have been corrected. Lastly, she will verify teacher's evidence of vaccination or immunizations.

IMMUNIZATION WORK

In all immunization work the health officer should be present, if possible. Before beginning any immunizations either he or the nurse, if the health officer is unable to attend, should explain the purpose and procedures to the children, teachers, and parents. Never deceive the child by telling him that a certain immunization will not hurt if it really does. Always avoid the use of the word "shots" in an immunization program. Wherever possible the approximate number of suspectibles in each school should be known. With the exception of smallpox and diphtheria immunizations for entrance, all children should have a request slip from the parents so worded that the parent is requesting the immunization rather than the health department seeking permission to immunize.

All immunizations must be done with good equipment and sterile technique. Time must be so arranged that it is possible to give three

doses typhoid and one dose diphtheria and smallpox vaccine besides the examination and preliminary work, which makes a total of at least five visits to a school. In many large areas only about one-third of the schools will be taken care of a year due to lack of time, travel, and road conditions.

DENTAL SERVICE

A dental service is desirable if at all possible. This can be done by local volunteers. The examination should include the charting of defects, explanation of diet and care of the teeth. Many dentists will be glad to write articles for the local papers and will give lectures to groups of the laity and to school children coached in terms of a child's understanding.

Health education may be fostered by certain text-books, written essays on health subjects, schoolroom talks, playlets, lectures to the parent-teachers' association, "Child Health Day," "Eight Point Boy and Girl," "Five Star Program," and moving pictures. One of the best is to set up in each school a miniature health department which will include all the personnel of a full-time department and the functions carefully worked out and explained to the pupils. The appointed children may be changed from time to time and new officers appointed.

School sanitation is a very important part of the program and must, because of necessity and of training, be left largely to the sanitary engineer. This shall include the water supply with methods of dispensing it such as, individual drinking cups, proper drinking fountains, or cooler fountain combinations. Where a poor water supply is present it may be necessary to correct it if the board of education has sufficient funds. If not, a chlorine solution can be made up and distributed to the schools with adequate instructions written and pasted on the bottle for the teacher to use in the water.

Careful note should be taken of the hand-washing facilities and with what care the teacher sees that the children make use of washing their hands, particularly after the child has been to the toilet. There should be at least one wash basin for each forty-five pupils.

The sanitarian must note the type of toilets, location, condition, cleanliness, and need of repair. Toilets should be provided so that there will be one for each twenty girls and one for each thirty boys and one urinal for each forty boys. This need may be reduced by twenty per cent where there are over five hundred pupils. The type of toilets must be approved open end or sanitary privies of the United States Public Health Service type. Urinals are also to be of modern type.

The sanitarian should in addition pay particular attention to the buildings as to structure, material, state of repair, floors, walls, doors, windows, roofs, ceilings, and screens, if obtainable. All rooms must be ample enough to provide at least fifteen square feet per person and only thirty-five to forty pupils per room. The size of the room should be in a ratio of two to three or three to four. As an example for forty pupils the room should be twenty by thirty feet with a twelve foot ceiling and the last pupil in the room should not be more than thirty-two feet from the blackboard. A room this size will provide two hundred and fifty cubic feet of air per person.

HEATING AND VENTILATION

The heating unit should insure uniform circulation. Many schools have only a "Burnside" stove which can be greatly improved by adding a sheet iron jacket around the body of the stove. The proper heating of one room wooden schools is a major problem because most of these were built before the advent of modern heating and are so arranged that a great deal of money would have to be expended by the board of education to correct them.

The same may be said about ventilation. The amount of carbon dioxide in the air must not be over six parts per ten thousand cubic feet with proper humidity and temperature. The simplest way to correct this problem is the open window with a deflector as the open window itself will tend to produce drafts and

dust. An adjunct to this would be exhaust ducts on the opposite side of the room. Where possible, induced currents or drafts may be provided by an electric fan attached to these ducts. Window ventilation at 67° F is characterized by less respiratory disease and has reduced air flow. The air flow should not be less than eighteen hundred cubic feet per hour.

Blackboards are preferably of slate with no glare. It is possible that within the next few years the blackboard will be replaced with a white one and the use of black chalk. This type of board will tend to cut down eyestrain of the pupils.

Seats must be properly adjusted to the individual to insure less postural deformities. Each school should have cloak and lunch rooms provided. These must be isolated from the school room proper.

LIGHTING FACILITIES

Lighting should be such that there are at least five to ten foot candles on each desk and three to six foot candles for each blackboard. The foot candles can readily be ascertained by several accurate measuring devices on the market that cost around fifteen dollars. The difficulty here lies in the fact that on dark days there is less light and in many of our rural schools there are no electric lighting facilities. Many have no artificial lighting of any kind.

The playground must be sufficient for the number of children. In the primary grades there must be not less than two acres for each thousand pupils (up to the third grade) three acres for the elementary grades and five to six acres for high schools. The high schools require more space due to athletic fields. The area of the school must be such that there will be good drainage, elevation and no obstruction of the sky or the rooms will be dark.

The walls should be painted a buff or light cream to produce the maximum of light. Floors should be of rubberized material or hardwood when possible as there will be less shock to the pupil and the floors will be much warmer. It is best to clean them with a vacuum cleaner, or if this is not possible some material should be used to allay the dust.

The sanatarian must note all of the above mentioned items and recommend such changes as are necessary to the board of education after talking them over with the health officer. If these recommendations are properly set before the board many of them will be corrected as funds are available.

Many of you ask, "What value is all of this in a school program?" The answer is readily seen because the program must be broad enough to provide for future work and the correction of anything that may be a menace to good public health practice now and later.

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HANDICAPPED GIRLS

The program of organized groups of Girl Scouts has much to offer physically handicapped girls, as Anne L. New points out in her article "The Handicapped Child" which appears in the May issue of *Hygeia*. The activities of the troops composed of only one or two crippled members in addition to the others, as well as troops solely for handicapped children are as varied as the needs of the children they serve.

The Girl Scout program offers so many fields of activity that these children can choose subjects suited to their ability, without feeling that restrictions are forced on them or that their choice need be dictated by their handicaps. They adjust better in "getting along with people," and they find the self confidence that comes of making real contributions to group life, because the Girl Scout code stresses service for others by handicapped and normal alike.

TUBERCULIN TESTS AT WEST VIRGINIA UNIVERSITY

By F. R. WHITTLESEY, M. D.
Morgantown, West Virginia

FOR THE past two years the entering freshman students at West Virginia University have received tuberculin skin tests at the time of initial examination, with subsequent chest x-rays of positive reactors. In 1936 the testing was done with purified protein derivative (P. P. D.), a special tuberculin furnished by the Phipps Institute, Philadelphia. With P. P. D., two tests are used, the first employing .0002 mg. P. P. D. Negative reactors to first tests are given a second test, using .05 mg. The volume of injected fluid in each test is .1 c.c., given intradermally. In 1937 a single intradermal dose of .1 c.c. of 1:1000 old tuberculin was used. The change from P. P. D. was made because of the great amount of time consumed by the two dose method.

Many students are acquainted with the tuberculin test and know its value. Many have had it before. Student cooperation has been good both years, but the figures and results suffer somewhat from the fact that some of the students fail to complete their tests despite repeated efforts to round them up. Such defaulters as are finally gotten hold of and retested always prove to be negative. A positive reactor will return, because he wants to know what is the matter. One has the feeling, therefore, that the students who do not complete their tests are almost all negatives, and that if they could be included the figures would be improved.

TABLE I. 1936. TWO TESTS. PPD.

	Total Completed	Negative	Positive 1st Test	Positive 2nd Test	Total Positive	Per Cent Positive	Adult Disease
Male	344	256	37	51	88	25.9	0
Female	157	129	12	16	28	17.8	0
Total	501	385	49	67	116	23.1	0

As would be expected, the percentage of positives in 1936 detected by the two dose method is higher than the percentage in 1937 when a single dose was used. It is well known

TABLE II. 1937. SINGLE TEST, OT

	Total Tested	Negative	Positive	Percent Positive	Adult Disease
Male	405	322	83	20.5	0
Female	178	148	30	16.9	1
Total	583	470	113	19.4	1

that among positive reactors the degree of sensitivity to tuberculin varies tremendously from subject to subject. It is also well known that some individuals who have had a definite childhood type of infection, as evidenced by x-ray, will not react to tuberculin, even in strong concentrations. The explanation given is that healing has been so complete that with the passage of time the body has entirely lost its reactivity to tuberculin. It is also known that a certain percentage of positive reactors will show no x-ray evidence in the lungs of a healed childhood type tuberculosis. In many of these cases we are dealing with individuals whose childhood infection took place elsewhere in the body. Still other complicating factors exist that to some extent affect the accuracy of tuberculin studies. One is the fact that a small percentage of persons with active tuberculosis will fail to react to tuberculin. Another is that a positive tuberculin reaction may be rendered temporarily negative by some acute infection, such as influenza.

All these complicating factors are to be recognized as affecting the validity of tuberculin tests, but the actual practical effect of any of these factors may be disregarded when the objective of these tests is considered, and, perhaps more important, the class of human material that is being tested. College students

would not be sent to college if they were chronically ill. With them we are faced with the problem of finding latent, asymptomatic tuberculosis of the lungs. At the age level of college students, tuberculosis other than pulmonary may be disregarded. Not that tuberculosis elsewhere in the body does not occur, but that it occurs much less commonly, has a less serious prognosis in general, and will rarely for long be asymptomatic. The hazards of pulmonary disease, on the contrary, are too well known to require comment. For all practical purposes the use of a single test dose of tuberculin, followed by chest x-rays of all positives, may be considered a satisfactory method of finding early pulmonary disease.

The larger incidence of positive reactions in males is to be expected. Not included in the tables are figures on the incidence at different age levels. As would be expected these figures showed a rising incidence of positives with increasing age.

TABLE III. COMPARISON OF STATE STUDENTS WITH OUT-OF-STATE

	Total Tested 1936	Per Cent Positive	Total Tested 1937	Per Cent Positive
West Virginia	476	22.5	513	17.9
Out-of-State	25	36.0	70	30.0

Table III gives the incidence of positive tests in West Virginia residents as compared to out-of-state students. There is a considerable possible error in these figures, as the sole basis of separation is the home address as given by each student. The comparison is of some interest, however, and so is included.

Figures from other universities and colleges vary widely in the percentages of positives reported. Those with highest percentages are located either in the eastern seaboard states, or in California. Percentages as high as 60 per cent occur in both areas. The figures from the midwest are much lower, in the neighborhood of 25 per cent, but are still slightly higher than the figures here reported. The low incidence in West Virginia is explained by the fact that but few students come from densely populated areas, in which, as is well known, the incidence of tuberculosis is at its highest.

WEST VIRGINIA BELOW AVERAGE

It was somewhat of a surprise that in 1936 no cases, and in 1937 only one case of adult type disease were discovered. Reports from other institutions vary in the percentages of such disease discovered, the figures available averaging .59 per cent. That is to say .59 cases of disease per 100 students tested. Thus far the West Virginia figure is well below the average, but since it is based on only two years of testing it may well be altered greatly in the next few years. At no time in the past seven years has the incidence of pulmonary tuberculosis at this university been high, but the cases formerly discovered have all required extensive periods of sanitarium care because of the fact that the disease has been in every instance ulcerative when discovered. It is hoped that routine testing with tuberculin, with x-rays of all positives, will in great measure prevent such occurrences in the future.

Yearly repetition of tests on all negative reactors would be desirable, and also yearly repetition of x-rays on all positives. Funds, time and personnel at present limit the testing and x-raying to the entering freshman class, but it is hoped that eventually the surveys can be extended to include all classes at the university.

Supplementary Note: Since this report was submitted for publication several months ago two cases of pulmonary tuberculosis have been found in the student body. Neither student was a member of the groups tested in 1936 and 1937. Each case was found by x-ray following positive reaction to skin tests, which were made on account of known contact with nonstudent cases of tuberculosis.

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University Health Service.

VARICOSE ULCER OF THE LEG*

By HOWARD JONES, M. D.
Circleville, Ohio

IN 1876 I was one of the physicians at the Demilt Dispensary in New York City. For many months I dressed the varicose ulcers of the legs of the patients of the clinic. Here for the first time I appreciated the frequency of varicose ulcer and the great handicap which it is to the working man or woman.

The treatment at the time was to cleanse the ulcer and surrounding skin with soap and water, pack the ulcer with lint soaked in balsam of Peru and then strap tightly over this dressing strips of moleskin plaster, about half an inch wide, placed diagonally and crossing each other so that the whole ulcer was covered and under pressure. While this gave relief it seldom cured.

METHOD OF TREATMENT

Two years later, returning to my native city, I learned from S. D. Turney, M. D., that he had been treating varicose ulcer of the leg by tightly bandaging the leg, beginning at the toes and extending up the thigh, and after a few minutes releasing the bandage rapidly, starting the unwinding at the top. After several years I made some improvements on this method, which in my practice has proved so successful that I shall give it to you in detail.

In very severe and painful cases with swelling of the legs, and often there is more than one ulcer on each leg, the patient is put to bed for a week or more, seldom two weeks. The majority of cases are ambulatory, however, and without much swelling, and are treated without interfering with regular work. But whether an ambulatory case or not, the diseased limb is first washed with soap and water and after rinsing with clear water is dried. The ulcer is then swabbed with one to one-thousand solution of bichloride of mercury, applied gently but thoroughly. If the ulcer is deep and edges undercut a piece of fine mesh gauze, cut to fit over the ulcer within the area of the destroyed skin, dampened with the bichloride solution is applied. Over this is laid a pad of several thicknesses of gauze held in place by a few narrow strips of adhesive. This is done at bedtime. Immediately following, the limb is tightly wrapped from toes to eight or ten inches above the knee with a two and one-half inch para rubber Esmarch bandage. This should be tight enough to drive all the blood from the vessels and should remain on from five to ten minutes, but not long enough to produce discomfort. When the time is up this bandage is suddenly loosened above and rapidly unwound. By this means the stagnant blood in the veins is driven out and its place supplied by an onrush of fresh blood which furnishes stimulation to the starving cells of the ulcer and all leg veins as well. The bichloride dressing is left on until morning, when the process is repeated. If the limb is edematous the patient is kept in bed and the process repeated, night and morning, until the swelling has subsided sufficiently to measure for a light weight or medium weight elastic stocking. This stocking must be made to order to fit the leg. Trade stockings seldom answer the purpose because they do not make even pressure, and one that does not fit will be worse than useless. There must be equal elastic pressure on every part of the leg, and especially it should never be tighter at the top than elsewhere. As soon as the stocking comes from the factory, generally four or five days, it is put on in the morning after the treatment with the Esmarch bandage, and taken off at night before the treatment and

*Read before the Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, West Virginia, November 8, 1937.

left off until morning. Granulations start in a few days, secretion from the ulcer becomes less and less, and soon a white line of new skin begins to show around the edge of the ulcer. At this stage it is best to cover the granulations for a few days with fine gauze spread with zinc oxide ointment, but do not discontinue the Esmarch bandaging.

CASES WITHOUT SWELLING

In cases without swelling the treatment is not begun until the elastic stocking arrives, then the same course is pursued as described except that the patient is not confined to bed. The length of time for the healing of the ulcer of course depends somewhat on the general condition of the patient and the amount of skin involved. Sometimes diabetes or a Wassermann of three or four plus is found, in which instances appropriate specific treatment is given. In days before tests for syphilis were in use there were no failures in healing the ulcer although some undoubetdly have been syphilitic in character. After the ulcer is healed, which is accomplished in a few weeks' time, according to its severity, the patient must continue to wear a properly fitted elastic stocking. With this treatment the veins seem to become smaller, and after several years the elastic stocking may be dispensed with for months at a time. The injection method of curing varicose veins of the leg can, after the ulcer is healed, be used in selected cases to great advantage. The treatment described is so uniformly successful, so simple, cleanly and comfortable in its results, that I know of no other procedure that compares with it for satisfaction to patient and physician.

The applications to the ulcer can be varied to suit the case or the convenience of the physician. Undoubtedly it is best at first to use some strong germicidal solution to the ulcer, it should not be forgotten that air and dryness are essential to rapid healing, consequently, the sooner all ointments and irritating antiseptics can be dispensed with the better.

I shall not discuss here the etiology or the pathology of varicose ulcers of the legs further than I have done in the method of treatment. I have often wondered if there might be danger in putting into the general circulation so suddenly the large amount of vitiated blood which accumulates in the dilated veins, but so far no remote or immediate damage has come from the practice as far as my observation goes. Therefore it seems to me negligible.

My practice has not been extensive enough, although it spreads over considerable time, to justify positive conclusions, but the principle seems to have merit. This method of driving out from all the veins of the leg the stagnant blood, which at best moves slowly and probably often in a vicious circle owing to anastomosis, is the only one to my knowledge which can accomplish a complete replacement of fresh blood within the dilated veins. If this theory is correct it should not only heal the ulcer but finally should improve the veins themselves. This I have known it to do.

TROPICAL DISEASES

Many diseases now described as tropical may in time become widely spread over the earth's surface, declares Dr. George A. Skinner in the third article of his series on "Parasite Tricks" which appears in the May issue of *Hygeia*.

Most of the so-called tropical diseases only await proper methods of spread before they are ready to extend their territory. For instance, it was only a few years ago that amebic dysentery was referred to as tropical dysentery, since it was found largely in southern climates. Now it is found in almost every part of the globe, even to the subarctic lands.

Elephantiasis is one of the diseases once found only in tropical countries that has climbed as far north on the globe as 41 N. latitude, at which levels are Pittsburgh and Omaha. This disease, caused by a tiny blood worm, is manifested by great enlargements of the legs, arms, genitals or even internal organs. These worms are carried by the malarial mosquito, enter the body when the mosquito bites it, and grow and multiply in the lymph glands.

NEPHROSIS: A CASE REPORT*

By F. R. WHITTLESEY, M. D. and J. E. ANDES, Ph.D., M. D.
Morgantown, West Virginia

TRUE lipemic nephrosis is an uncommon condition in the opinion of all authorities. The characteristic anasarca and ascites are generally ascribed to the lowered serum protein, and altered albumin/globulin ratio which result from the marked albuminuria. In glomerulonephritis the appearance of anasarca is common, but is ascribed to a combination of factors some of which are certainly not present in the true nephrotic syndrome. There is disagreement as to whether nephrosis is a separate clinical entity, as concluded by Leiter in his monograph[1], or whether it is only a part of the picture of glomerulonephritis, but a part which becomes so tremendously prominent as to seem to be a separate disease entity[2]. Whatever the final conclusion may be it is desirable that the nephrotic syndrome be recognized because of its therapeutic indications, which differ from those of glomerulonephritis.

Satisfactory diagnosis can be made by ordinary laboratory tests and clinical observations, though there are a number of complicated tests that are of value. An inclusive diagnostic summary is to be found in Fahr's recent paper[2] from which the following more simple criteria are taken:

A. Urinary Findings:
   1. Oliguria, 200-600 c.c. per day (except in diuresis).
   2. High specific gravity, 1025-1050 (except in diuresis).
   3. Albuminuria, four plus, or one to five per cent, with 10 to 30 grams in a 24 hour specimen.
   4. Hyaline and granular casts abundant, often with doubly refractile globules in them.
   5. No red blood cells (an occasional erythrocyte is normal).

B. Renal function. Normal by all tests.

C. Blood findings:
   1. Increased neutral fat, which may be evident grossly as a milky serum when blood is drawn.
   2. Normal to low blood urea nitrogen, nonprotein nitrogen, etc.

D. Other findings:
   1. No elevation in the blood pressure.
   2. Low basal metabolic rate, minus 10 to minus 30.
   3. Low voltage electrocardiogram.

Of much interest, but more difficult to obtain are:
   1. Low serum protein, with markedly lowered albumin/globulin ratio.
   2. High plasma cholesterol, usually 400-500 mg., or above.

Studies in the case reported here were necessarily somewhat scattered and incomplete, as Eastmont Sanitarium depends on the medical school and the local hospitals for its laboratory services and x-rays. The blood and urine examinations were all carried out under the direction of one of us. (J. E. A.)

The patient, H. D., female, white, single, 21, was transferred to Eastmont Sanitarium on September 23, 1937, with the diagnosis of tuberculous peritonitis. Her prior hospitalization had lasted eight weeks, and she had had eight abdominal paracenteses. No laboratory data were available.

Onset of illness was July 3, 1937, at which time edema of the feet was first noted. Ascites was found on July 24, 1937. No acute infection preceded the appearance of the edema. The patient had been in good health.

PAST HISTORY

Patient was born prematurely, at eight months. She never developed normally, did not sit without support until 18 months, and did not walk or talk until three years of age.

*West Virginia School of Medicine, Departments of Medicine and Pathology.

At this age she had severe erysipelas, and was said to have a bad heart. She began school at about the usual time, but was soon taken out on account of illness, and at the age of nine was sent to Hopemont Sanitarium with a diagnosis of pulmonary tuberculosis. She remained 18 months, spent two years resting at home, and was then readmitted to Hopemont for further treatment. X-rays in each admission showed essentially the same findings—scattered infiltration in both lung fields, and a markedly enlarged heart in the region of the pulmonary conus. Sputum examinations were negative for tubercle bacilli.

Since that time the patient had been quite well, though suffering shortness of breath on comparatively little exertion. Because of her somewhat retarded mental condition she was kept out of school, but was useful and active in housework at home.

Physical examination on admission to Eastmont showed marked generalized anasarca, and ascites. The patient's facies and speech gave evidence of mental deficiency. The eye grounds were normal. The heart was rapid but otherwise normal. Blood pressure was 104/70. Râles were present at the bases of both lungs. No other important findings were noted.

Urinalysis showed a specific gravity of 1024, and four plus albumin. No casts were seen in the first specimen examined. The reports of the various laboratory examinations appear in the accompanying tables. Blood drawn for blood chemistry was milky in appearance.

Thyroid substance, gr j daily was begun soon after admission, and the patient given a liberal diet with restriction of salt. Considerable improvement occurred in one week, the edema was diminished and the mental state clearer. Weekly administration of salyrgan suppositories, .4 gm., was then begun. Three such doses were given, with concurrent use of ammonium chloride, gr xv, q.i.d. After two doses of salyrgan there was but a small amount of ascites remaining, and some edema over the sacrum. The third dose cleared the edema and ascites, and none has been noted since.

Repeated examination of the blood pressure showed a maximum of 110/80. A six foot x-ray of the heart, taken February 17, 1938, gave normal transverse measurements, and the lung fields were clear. Electrocardiogram September 28, 1937, showed normal sinus mechanism, rate 130, markedly low voltage, slurring but not widening of QRS in all leads, left axis deviation, and a diphasic T-wave in lead one. A second record on November 24, 1937 showed definite voltage increase to within normal limits. In a third record, February 17, 1938, the T-wave in lead one had become upright, the left axis deviation still remained.

For a number of months the patient has been in good physical state. Thyroid substance, which was discontinued on November 30, 1937, was resumed on March 6, 1938, because of a desire to see if the mental status would be improved thereby. No particular change occurred. Following are the summaries of the laboratory findings.

URINE

	9-24-37	11-12-37	2-17-38	4-22-38
Spec. gravity	1024	1020	1011	1009
Albumin	boiled solid	164 mgm. per 100 c.c.	125 mgm.	200 mgm.
Alb. in 24 hrs.		2.4 gm.	2.0 gm.	4.2 gm.
Sugar	f.t.	0	0	0
WBC	0	2-4/high field	8-20/hf	0-1/hf
RBC	0	very occas	0-1/hf	0
Hyaline casts	0	occas	very occ	occas
Granular casts	0	occas	0	occas
Doubly refractile granules	present	—	—	—

Repeated qualitative tests at intervals showed always a four plus albumin.

BLOOD COUNTS

	9-25-37	11-23-37	2-17-38
Hemoglobin	14.7 gm./100 c.c.	15.0 gm.	17.1 gm.
WBC	—	—	8050
RBC	4.1	—	5.85
Platelets	—	—	345,000

Blood Kahn negative.

BLOOD CHEMISTRY

Normal (by method used)	Urea N. 10-15	Sugar 90-120	Cholesterol 150-200 mg. per 100 c.c.	Albumin 4.5 gm. 100 c.c.	Globulin 2.5 gm. 100 c.c.	A/G Ratio 1.4-2.0	Total protein 6.5 gm. plus per 100 c.c.
9-25-37	8.8	88.0	1565	1.70	2.33	0.73	4.03
11-23-37	—	—	990	3.40	3.05	1.12	6.45
2-17-38	9.8	—	650	3.90	2.60	1.50	6.50
4-27 38	—	—	395	3.20	1.58	2.03	4.78

COMMENT

The extremely high cholesterol is worthy of note, as such high levels are very seldom reached. According to some this is an index of the severity of the glomerular lesion. If this is so, the case here reported should be classed as very severe, which seems hardly compatible with the rapid improvement. Comparatively normal blood cholesterols have been found in cases recently reported[3] whose edema was completely unaffected by large dosage of thyroid and mercurial diuretics. It seems unlikely that the blood cholesterol level is a reliable index of severity.

Edema in nephrosis is generally believed to be related to the albumin globulin ratio, and to the total protein level in the blood. If the ratio is normal it is supposed that edema will be absent even if serum proteins are low. According to Wright[4] the albumin fraction of the proteins is the most important factor. Its critical level he sets at two per cent, below which point edema will occur. In the case presented here the patient became free of edema while her albumin/globulin ratio was still far below normal. Her serum albumin, however, on the first test, September 25, 1937, was 1.7 per cent, not far below Wright's critical figure of two per cent, and one may presume that the albumin soon passed two per cent since in eight weeks' time it had doubled, reaching 3.4 per cent on November 23, 1937. No doubt the "critical level" for edema differs in different patients. In this case the level of the albumin appears to be of more importance than the albumin/globulin ratio. To quote Leiter, "There is nothing specific about a reversed albumin/globulin ratio * * * the absolute values for plasma albumin and globulin are far more important."

Albuminuria in this case, as judged by the quantitative measurements, has never been large as compared with the tremendous daily loss that may occur.[1] In nephrosis the albuminuria may remain for months or even years, and as long as this continues there is the hazard of edema. The loss of albumin may increase for no apparent reason; the blood proteins be affected and edema recur. Disappearance of edema may also occur spontaneously, due perhaps to healing of the lesion. Such a spontaneous remission may have occurred in this case, coincidental with the treatment which seemed so effective. It is hoped that continued observation of the patient will be possible, and that the recent fall in the proteins recorded in the last examination will prove transient.

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CORRECT SHOES

The expectant mother should wear shoes that will hold up the overburdened arch and relieve the ankle and leg of as much strain as possible. A. Owen Penney describes the correct footwear for the pregnant woman in his article "Foot Care for the Mother-to-Be" in the May issue of *Hygeia*.

As the weight increases, the strain on the feet and legs is correspondingly greater. Therefore, great care should be taken of them at this time. At the same time the pressure in the pelvis begins to hinder the free passage of the blood stream through the femoral vessels down into the legs and the back again.

The combined result of all these various factors is congestion, swelling and a feeling of heaviness in the legs and feet, together with pain and excessive fatigue. At first the tendency is to stop all exercise, particularly walking, and to seek relief in the loosest and roomiest shoes to be found, which, too often, are old discarded street shoes or bedroom slippers.

To check the excessive flow of perspiration which is common to pregnancy, alcohol rubs and antiseptic dusting powders may be used.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

One measure of the efficiency of the tuberculosis campaign is the percentage of tuberculosis patients who reach the sanatorium in the minimal stage. The most extensive study yet made indicates that only about 16 per cent of sanatorium admissions are classified as minimal cases. There are several reasons why this number is so small. Two of them, namely delay in seeking advice and delay in making the diagnosis after the patient has visited the doctor, have been analyzed by Monte and Blitz who reviewed the experiences of 300 patients under treatment in the Dibert Memorial of Charity Hospital in Louisiana. Abstracts of their article follow:

FACTORS OF DELAY IN DIAGNOSIS

Of the 300 white adult patients studied, less than two per cent were classified as in the minimal stage, 45 per cent in the moderately advanced and 53.3 per cent in the far advanced stage. Ages ranged from 16 to 78 years. Seventy-six per cent of the females and 51 per cent of the males were under 35 years of age.

A history of tuberculosis in the immediate family was found in 28 per cent of the series. A striking feature was that almost twice as many females as males admitted a history of tuberculosis in the family. Evidently contact with the tuberculous patient in the home is more frequent among female members of the household for they usually have the responsibility of caring for and nursing the sick.

Prior to their admission to the hospital, the diagnosis was established in 61.6 per cent of the cases, was suspected in 19.6 per cent and was not made in 18.6 per cent. The high incidence of "suspected" cases is accounted for by the limited facilities of the average practitioner in Louisiana and the authors believe that if the roentgen ray and laboratory aids were more widely used, diagnosis would be established in a greater percentage of cases.

The responsibility for delay in diagnosis when symptoms are present must be shared alike by the patient and the attending physician. Symptoms of a mild nature often seem negligible in the patient's estimation and thus he postpones medical consultation until more severe symptoms appear. In two of the 300 patients, the duration of symptoms before visiting the doctor averaged two months, and two more months elapsed before the diagnosis was established. At the other end of the scale are 90 patients who delayed almost 10 months before consulting the doctor and then suffered a further delay of about 12 months before the diagnosis was established.

Cough and expectoration were the most prominent initial symptoms and these also most frequently caused the patient to seek medical attention. In over 50 per cent of the cases, this symptom complex, although being the incentive for the visit, had been present for many months and undoubtedly was associated with constitutional symptoms of some degree. Yet these patients insisted that the accompanying symptoms were of little consequence and were not serious enough to interfere with their daily routine. True, pathology may be present in the lung parenchyma without any obvious symptoms as revealed in five cases reported wherein symptoms of subjective importance were absent, while roentgenologic study revealed active pulmonary tuberculosis. Four of these cases were minimal, the fifth being moderately advanced. This does not necessarily imply that the number and duration of symptoms can be strictly correlated with the stage of the disease, for some of the patients volunteered the information that hemoptysis or pleurisy had been the initial symptom, and immediate skiagrams revealed either moderately or far advanced pulmonary tuberculosis.

Of all the symptoms listed, there is little variation between the initial and presenting symptoms, with the exception of hemoptysis. As an initial symptom it was present in 9.6 per cent of the cases, whereas 22.7 per cent sought medical aid because of blood spitting. This difference in percentage indicated that although these patients had had previous symptoms a pulmonary hemorrhage was regarded with enough fear to prompt them to visit a physician.

Fever and night sweats, a combination of symptoms which in most textbooks is given a ranking position in the diagnosis of tuberculosis, were found with comparative infrequency in this series. As initial symptoms they were present in only 3.6 per cent, and as presenting symptoms, in five per cent of the cases.

The authors offer the following explanations for the failure in diagnosis on the basis of presenting symptoms:

Cough and Expectoration: The diagnosis was not suspected in 38.3 per cent of this group. This

was probably due to the tendency on the part of physicians to diagnose prolonged or recurrent coughs as chronic bronchitis or chronic sinusitis.

Loss of Weight and Fatigability: Tuberculosis was not suspected in 50 per cent of these cases. Such diagnoses as nervousness, nervous breakdown, overwork, overindulgence in alcoholics and tobacco, dissipation, and chronic debilitating diseases were offered by the attending physician.

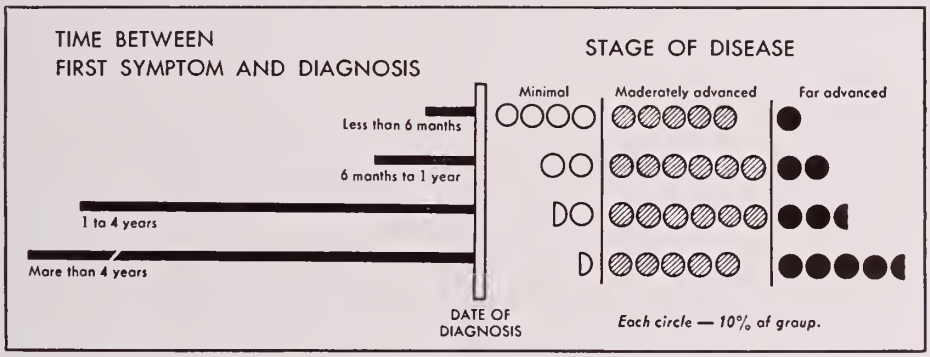
Hemoptysis: "Blood spitting," which has been known throughout the centuries as one of the pathognomonic symptoms of phthisis, was a frequent source of error in diagnosis. Although the percentage of failure (22.1) was less than that in other groups of symptoms, it is still too high. The absence of positive physical findings on examination of the chest probably accounts for such diagnoses as ruptured blood vessel, irritation of throat, and bleeding from nasopharynx.

Pleurisy: When a patient is seen only once, it is difficult to make a diagnosis unless a suspicion of tuberculosis is ever present in the physician's mind and the patient is urged to return for further observation after the acute attack subsides. Idiopathic pleuritis, though it may be accepted by the majority of physicians, should never be used as such until a sufficient interval has elapsed and the lung has remained clinically and radiologically negative. Failure to recognize this has resulted in 40.9 per cent mistaken diagnoses.

Fever and Night Sweats: Climatic and endemic conditions undoubtedly are the source of confusion as regards this symptom complex. With the high incidence of malarial infection in Louisiana, it is little wonder that a number of patients were treated previously with quinine, plasmochin or atabrine. This group leads all others in percentage of error, 73.3 per cent being neither diagnosed nor suspected.

Grippal: The diagnosis was missed in 40 per cent of the group presenting symptoms ordinarily attributed to an acute respiratory infection with or without physical signs of a pneumonitis. The constant occurrence of "flu" epidemics and the failure to realize that bed rest over a short period may render a tuberculous patient asymptomatic are the natural sources of error. As in any of the aforementioned symptom complexes, suspicion of tuberculosis is of prime importance.

Factors Delaying the Diagnosis of Pulmonary Tuberculosis, Louis A. Monte, M.D., and Oscar Blitz, M.D., New Orleans Medical and Surgical Journal, Vol. 90, No. 8, February 1938.



Based on a study of the experience of 361 patients with tuberculosis made by Ruth A. Sedar. Social Research Series No. 5, National Tuberculosis Association.

PREPARE CHILD MENTALLY

Mental preparation of a child who is to undergo an operation is as important before it as maternal care is after the operation, and Persis Penningroth gives detailed points to guide every action with your child in "Your Part in Your Child's Recovery," her article in the May issue of *Hygeia.*

Prepare the child ahead of time about doctors' and nurses' behavior and what the operation will be like. You don't have to explain every detail—you probably couldn't—but satisfy the child's fear or curiosity, and be truthful as far as you go.

Build up a readiness for the operation as a new experience which, in spite of some pain, will be interesting, and show how important it is in order to be completely well again.

Build up willingness to comply with nursing service and doctors' orders by again emphasizing that the child will get well sooner.

Don't discuss the child's illness in his presence. If an adult asks about or starts talking of the operation before the child, just answer "fine" and change the subject. You may explain later.

President's Page

This page should perhaps be devoted to comments and admonitions on our duty regarding infant and maternal welfare recently publicized by Child Health Week. Professionally we are committed to such worthy undertakings and I have no fear that our Association is being ably represented in these activities by the chairmen of our standing committees.

One's inclinations often are at variance with his duty. In this instance I wish I were poet enough to say something fitting about the beauty of the great outdoors and give some expression to the sheer joy of living. Having recently traversed several hundred miles of our most scenic highways and viewed enroute the verdure clad mountain sides splotched with blossoms of dogwood, red bud, azalea, and other native shrubs, surpassing in beauty the rarest oriental tapestry, I was impressed with the incalculable cost in beauty, quiet, and peacefulness at which we buy the comforts and conveniences of modern life in the machine age.

Though writing this in May the premature summer weather inevitably makes one ask "What is so rare as a day in June?" In such a mood the transition in thought is easy and natural to fishing. Since stern duty has so far prevented the fruition of this most human longing, perhaps some of my readers likewise thwarted will join with me in the vicarious indulgence of our piscatorial instinct by enjoying this little quotation from Walton's Compleat Angler:

Of recreations there is none
So free as fishing is alone.
* * *
I care not, I, to fish in seas,
Fresh rivers best my mind do please,
Whose sweet calm course I contemplate,
And seek in life to emulate. * * *
And when the timorous Trout I wait
To take, and he devours my bait,
How poor a thing sometimes I find
Will captivate a greedy mind:
And when none bite, I praise the wise
Whom vain allurements ne'er surprise.

President.

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THE FEE SITUATION

Again we enter the literary arena to joust with the subject of medical and surgical fees. This month's discourse will be devoted to the age old principle, oft recognized in our American and English courts, that the doctor may charge according to the ability of his patient to pay. We swing in stride with this principle, if the principle is sensibly and honestly applied.

Unusually large fees are undoubtedly charged unusually rich men, and such fees are generally paid without protest. The downright poor are served by the profession almost as well as the millionaires, the only difference being that no fee is charged at all. We hear very little about the fact that the worthy poor are served by the profession without charge. Here are the two extremes, and apparently no fuss is being made about either.

It is with the "in-between" class that many of our professional confreres fail to properly apply the principle mentioned in the first paragraph of this editorial. They make the necessary distinction between the wealthy and the poor, but they fail to make any distinction between the laborer, the truck driver, the artisan, the shop foreman, the office manager and the plant superintendent. Although the wage differential may range from eighty to eight hundred dollars per month, no differential whatever is made in an appendectomy fee.

The ability of the patient to pay should be of considerable importance to the doctor because it is of such vital importance to the patient himself. That is why we feel that this principle, if applied at all, should be made to apply all the way down the line. A herniotomy fee of $150 would probably be a cinch for the superintendent, a fairly reasonable assessment for the manager and foreman, a hardship for the artisan, a backbreaker for the truck driver and a tragedy for the laborer. For the first it would probably entail no more than the writing of a check. For the last it would probably entail long weary months of worry and desperation.

The above example may be extreme, but it illustrates the point which we are attempting to bring out. If the medical profession is to follow the principle of charging according to the ability of the patient to pay, then the medical profession should recognize that there are other gradations than rich and poor. If the principle is to be applied at all, it should be applied for the upper and lower middle class brackets as well as for the paupers and the millionaires.

PRIVILEGED COMMUNICATIONS

"Privileged Communications Between the Doctor and His Patient" is the subject of an interesting article in the April issue of the *West Virginia Law Quarterly*, written by Judge Thomas H. S. Curd of the Eighth Judicial Circuit, Welch. West Virginia is one of twenty-four states that does not subscribe to the doctrine of privileged communications between a doctor and his patient. There is a widespread belief in this state in both the medical and legal professions that this privilege does exist in litigated cases.

Judge Curd takes issue with the twenty-four states in which privileged communications between doctor and patient are recognized. He quotes the New York statute, passed in 1828, from which later statutes have generally been drafted:

> No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient in a professional character and which information was necessary to enable him to prescribe for such patient as a physician or do any act for him as a surgeon.

According to Judge Curd, the purpose of this statute was to promote secrecy and privacy as to the ailments of the patient to save humiliation and embarrassment. This extends the privilege not only in respect to diseases which might cause embarrassment, but in respect to all other injuries or illnesses. It applies to births, deaths and diseases which the law requires the attending physician to make a public record of. Under the terms of this statute, the physician sued for malpractice would be unable to testify in his own behalf. A patient, as plaintiff in a suit, could tell the world all about his disease or injury and testify fully about it, but the attending physician's mouth would be closed to the real truth of the situation.

"Undoubtedly," wrote Judge Curd, "there should be a gentlemen's understanding between the physician and the patient that the physician should not go out and voluntarily discuss most intimate matters affecting his patient's illness, but where the rights of third parties become involved or the rights of the public to the extent of litigation or prosecution for violating the laws, the truth should never be suppressed, which in all these instances either aids in defrauding some individual or infringing on the rights of the public at large."

SPECIAL NOTICE

We have just been notified by the United States Department of Agriculture that in the fourth paragraph of their release dated May 10, 1938, stocks of hay on West Virginia farms on May 1, 1938, should have been 120,000 tons instead of 108,000 tons.

Don't say we didn't warn you.

COMPENSATION BILLS

Again we call attention of JOURNAL readers to the recent ruling of the Workman's Compensation Department that all medical and surgical bills for services rendered injured workmen must be filed with the department within ninety days after service is completed. This ruling of the department went into effect on April 1, 1938.

The new ruling applies to the termination of treatment by the attending physician and not to the closing of cases by the compensation department. When this was reported in the April JOURNAL there was apparently some misunderstanding relative to the closing of compensation claims. The closing of a claim by the department has no bearing upon the matter in that the date of last treatment and the closing of the claim seldom, if ever, is an action which occurs on the same date.

The purpose of the new ruling is to prevent the accumulation of large numbers of compensation bills over a period of several years. When bills are allowed to accumulate, and not filed promptly, the compensation department is unable to properly determine the actuarial experience of the employing companies against whom the claims originate.

Senator A. G. Mathews, compensation commissioner, advised the Association's Compensation Advisory Committee on May 24 that it was not the desire or intention of his department to work any hardship upon doctors treating long-drawn out cases. He stated that if a doctor was uncertain about stopping treatment on a chronic sufferer, it would be quite proper for the doctor to file his bill at any reasonable time and to notify the department that further treatment would be or might be necessary.

POSTGRADUATE COURSES

Plans for the postgraduate refresher courses to be put on under the direction and auspices of the State Association this summer are rapidly nearing completion and the final details will be worked out in the next few

days. During the past two years the courses have been offered by the State Health Department. This year the entire program has been taken over by the Association.

Present plans call for the opening of the postgraduate series on Monday, July 18. Two circuits will be operated, one for the northern part of the state and one for the southern. The centers on the northern circuit will be Martinsburg, Keyser, New Martinsville, Weston and Fairmont. Centers on the southern circuit will be Fayette County, Logan, Welch, Beckley and Ronceverte. The courses will be put on at each center one day each week for five consecutive weeks. The place and hour for the lectures will be worked out individually by each society.

Lecturers for the northern circuit will be Dr. L. H. Douglas, Professor of Obstetrics, University of Maryland, Baltimore, and Dr. T. Campbell Goodwin, Chief of the Division of Pediatrics, Baltimore City Hospital. The southern circuit lecturers will be Dr. William F. Mengert, Professor of Obstetrics, University of Iowa, and Dr. Lee Palmer, Louisville. The first three lectures of each series will be devoted to obstetrics and the last two to pediatrics.

Arrangements have been made for the postgraduate lecturers to arrive at the respective geographical points at noon on the lecture day and be available throughout the afternoon and evening for consultations, conferences, clinical demonstrations and for any other purposes requested by the sponsoring county societies.

COUNTY MEDICAL SURVEYS

All component county medical societies of the State Association are urged to become interested in the proposed surveys of local and county medical facilities which have been recommended by the American Medical Association. All necessary forms and instructions relative to making the surveys are available at the Association headquarters in Charleston and will be mailed promptly to any county society which desires to undertake this important work.

The purpose of such surveys is to determine the prevailing need for medical and preventive medical services and the development of preferable procedure for supplying these needs. County medical societies should assume the leadership in their respective jurisdictions in determining medical needs and should, if necessary, enlist other agencies, such as health units, civic clubs, women's organizations and the like, in securing data from every source.

So far, only a few of our county societies have undertaken these surveys. The Association headquarters at Charleston will be glad to cooperate with societies wishing to undertake this work and to furnish complete instructions, forms and charts pertaining thereto.

WHITE SULPHUR SPRINGS

Although still over a month away, we wish to take this opportunity to urge every Association member to attend the seventy-first annual meeting of the West Virginia State Medical Association at White Sulphur Springs next July 11-13, 1938. The general program outline appears farther back in this issue of the JOURNAL and the complete program will be published in the July issue, which will be the "Convention Number." A study of the program as outlined in this issue will indicate a most worthwhile scientific assembly.

There has been some discussion of the $10 per day rate at the Greenbrier Hotel at White Sulphur. It should be remembered that this rate is on the American plan and includes all meals, special luncheons, and the convention banquet for those registered at the hotel.

It has been pointed out that some of the Association members may wish to invite one or more out-of-state guests to attend the convention and enjoy the program and scenic beauties of southern West Virginia. Members

who desire to invite out-of-state guests and who receive acceptances from them may have the names of their guests printed in the convention program in the list of special guests by notifying the headquarters office in Charleston.

The White Sulphur Springs meeting promises one of the best scientific programs and one of the most notable medical gatherings in our state's history and it is hoped that every member who can possibly get away will start making plans now to be in attendance.

TWENTY-FIVE YEARS AGO

(Taken from West Virginia Medical Journal, Issued June, 1913)

The Forty-Sixth Annual Meeting of the State Medical Association was held at Charleston on May 21, 22, 23, 1913. A total of 219 physicians were registered for the meeting. Dr. Frank L. Hupp of Wheeling was president and opened all the meetings. Dr. A. P. Butt of Elkins, now deceased, was secretary. The first day of the meeting was devoted to a general scientific assembly as was the third day. The second day was given over to sectional meetings. At this meeting the first gathering of the Eye, Ear, Nose and Throat Section was held. Dr. V. T. Churchman of Charleston was elected chairman of the Section and Dr. H. R. Johnson of Fairmont, secretary. The Section also elected an executive committee composed of Doctors T. W. Moore, Huntington; John L. Dickey, Wheeling; J. M. Sites, Martinsburg. The following is taken from an editorial on the Forty-Sixth Annual Meeting:

"In our May issue we told you that "this is to be the greatest meeting in the society's history." Perhaps this sounded familiar, and failed to make the impression that it should have made. But it was a true prophecy founded on foreknowledge of what was coming. In the numbers of those in attendance it exceeded the famous Clarksburg meeting by about twenty, the total of members and visitors reaching 221. In the number of papers read it excelled all former meetings * * * The division of the Association into sections made it possible to hear papers that would otherwise have been crowded out. * * * Very fittingly the meeting closed with the usual banquet * * * and all retired with a sense of satisfaction, physical, mental and social. S. L. J.

COUNTY SOCIETY NEWS

Parkersburg, W. Va.,
April 18, 1913.

Editor W. Va. Medical Journal:

A called meeting of the Little Kanawha and Ohio Valley Medical Society was held in assembly room of the Chancellor Hotel, March 28, and action taken by the society in regard to the flood sufferers. The society voted to extend the services of its members to the mayor and council in any way they might be needed and Dr. W. S. Link, president of the society, was requested to confer with the mayor relative to the situation. Dr. S. D. Wise was appointed to act with the city health officer in attending any sick that should be in the various houses of refuge, such as the Lyon Tabernacle. The society voted to supply all medicines needed.

M. R. STONE, *Secretary.*

* * * *

GREENBRIER VALLEY SOCIETY

This society held its last meeting at Ronceverte on May 20 at 8:00 p. m. The program called for the election of new members, papers to be read, this to be followed by a banquet. A ringing call for the meeting was issued by president N. R. Price and secretary T. C. McClung. We quote:

"Much has been accomplished by the West Virginia Medical Association, but as yet not half the physicians of the state are active members. This ought not to be. * * * Join the Association, attend its meetings when possible, and let your influence be felt in the administration of its policies. * * *

N. R. PRICE, *President.*

Editor's Note: We are glad to say that we now have over half the physicians of the state in our medical organizations.

WEST VIRGINIAN HONORED

The former West Virginia confreres of Dr. Charles S. Smith, Nogales, Arizona, will be pleased to learn of his election as president of the Arizona State Medical Association at their recent annual session at Tucson. Dr. Smith will take office at the Phoenix convention next year.

Dr. Smith was formerly in practice at Beckley and was a former councillor of the West Virginia State Medical Association.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

DIARRHEAS AND ENTERITIS UNDER TWO YEARS

Of all the acute infectious diseases that affect the younger age groups in West Virginia, diarrheas and enteritis occurring in infants under two years of age head the list. The season is at hand when physicians throughout our state are faced with the problem of treating this condition.

No other infectious disease, with the exception of typhoid fever, is so influenced by the sanitary conditions as this dreaded disease of childhood. The large number of deaths occurring in this specific age further emphasize the importance of early and continued supervision of infants and children by the family physician.

How many of you have had the experience of first being called into the home and finding a toxic, emaciated infant suffering from a diarrhea, and then to be faced with the problem of endeavoring to help this infant through such a stormy illness? Such an experience certainly impresses every physician with the importance of prevention.

Diarrheas and enteritis affecting this age group can be prevented by proper infant care and improvement of the sanitation in and about the home.

SURVEY OF THE BLIND

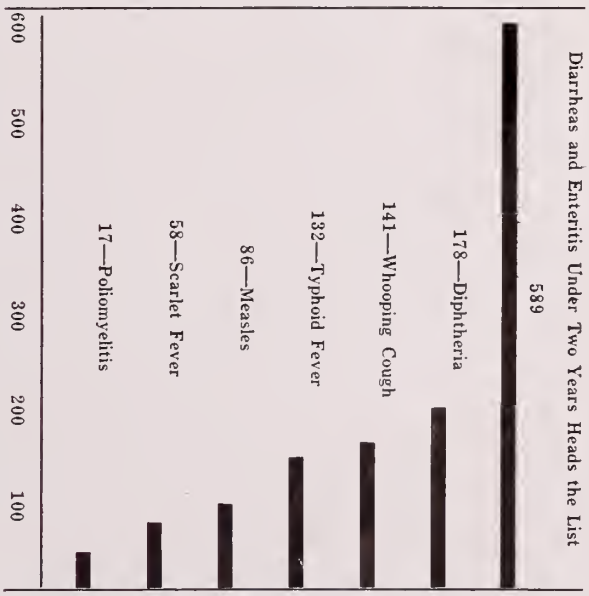
The Department of Communicable Diseases of the State Health Department is conducting a survey of the blind in six counties in West Virginia. The Department of Public Assistance and the Department of Education in these various counties are cooperating in making this survey.

The purpose of the survey is to determine the factor that trachoma is playing in the production of blindness, and in addition to endeavor to determine the future load of dependent blind in these respective areas.

The counties in which the survey is being made are: Wyoming, Lincoln, Pocahontas, Calhoun, Morgan, and Hancock.

The mobile unit has been organized for this purpose and is now in the field. The unit is headed by Dr. Robert Hare from Johns Hopkins University, who is acting as clinician in making examinations. Dr. Hare has just completed a three year fellowship in ophthalmology at Johns Hopkins and has been loaned by Dr. Allen Woods of Johns Hopkins to the State Health Department to conduct this survey. Two public health nurses and a secretary are assisting in the work. In addition, in each county the Department of Public Assistance is assigning their field workers to assist in case finding. The various boards of education are assisting in permitting studies of school children to be made in the schools and in transporting patients to eye clinics.

The survey was begun on April 1, and will continue until July 1. Two weeks are to be spent in each of the six counties. Preliminary work in each county is made by case findings and by interviews. As large a number of the school children are examined as possible through special emphasis being placed on the examination of school children in areas where there are known cases of trachoma. The last two days in a county is spent in conducting eye clinics, at which all those with severe eye disease are given a complete examination. Laboratory work is being done by the State Hygienic Laboratory and the Department of Eye Pathology at Johns Hopkins University. No treatment whatsoever is given, but every endeavor is made to make an accurate diagnosis on all cases.



AVERAGE NUMBER OF DEATHS PER YEAR OF CERTAIN INFECTIOUS DISEASES REPORTED IN WEST VIRGINIA. 1932-1936 Inclusive

The survey is interested in ordinary errors of refraction to the extent of determining the percentage of school children with errors of refraction. In the course of examination of school children, their eyes are tested for refractive errors but no prescriptions are given for glasses.

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on the evening of May 12 with a good attendance. The guest speaker of the evening was Dr. Virgil E. Simpson, Professor of Medicine, University of Louisville, who talked on "Fads, Fancies and the Pharmacopea." This was a very practical and worthwhile lecture and was greatly enjoyed by the members present.

BOYD F. BROWN, *Secretary*.

FAYETTE COUNTY

The regular monthly meeting of the Fayette County Medical Society was held at the Hotel Hill, Oak Hill, on the evening of May 10, 1938, with a fair attendance. Dr. C. W. Stallard, Montgomery, was the speaker of the evening, his subject being "Conservative Treatment of Fractures of the Femur." A general discussion followed.

G. A. DANIEL, *Secretary*.

KANAWHA COUNTY

The regular meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel on the evening of May 10 with a good attendance. Dr. J. A. Freiberg, Associate Professor of Orthopedic Surgery, University of Cincinnati, was the guest speaker of the occasion. His subject was "Low Back Pain," illustrated with slides and presented in the light of differential diagnosis. An interesting discussion followed, which was summarized by Dr. Freiberg in closing.

Plans are being worked out by the Public Health Committee of the society to set aside one fixed hour each week during which pre-school children may be immunized by their family doctors at a minimum fee.

A. SPATES BRADY, JR., *Secretary*.

LEWIS COUNTY

Dr. Sobisca S. Hall, Clarksburg, was the speaker at the May 12 meeting of the society which was held in the Lewis County Memorial Building, Weston. His subject was "Oral Endoscopy," illustrated with lantern slides. This was a most interesting and instructive presentation.

A committee consisting of Dr. Theresa O. Snaith, chairman; Dr. Ralph Fisher and Dr. R. O. Pletcher was appointed to take charge of arrangements incident to the postgraduate refresher courses in obstetrics and pediatrics to be presented at Weston beginning next July.

R. O. PLETCHER, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular meeting on May 11 at the Aracoma Hotel, Logan. Dr. Walter C. Swann of Huntington read a paper illustrated with lantern slides on "The Value of the Electrocardiograph in Everyday Medicine." Dr. Edward F. Roberts of New York City showed a film on "The Management of Pneumonia."

Dr. Arthur Davidman of Logan was elected to membership in the society.

The following delegates were elected to the state meeting in July: Dr. D. T. Moore, Stirrat; Dr. E. H. Starcher, Omar, and Dr. J. L. Patterson, Holden. Alternates, Dr. Harold Van Hoose, Mallory and Dr. W. E. Brewer, Logan.

Dr. Patterson was appointed by the society to work out details with the State Association relative to the postgraduate refresher courses in obstetrics and pediatrics to be put on in Logan beginning in July.

J. L. PATTERSON, *Secretary*.

MARION COUNTY

Dr. P. Brook Bland, Jefferson Medical School, Philadelphia, was the guest essayist at the April 26 meeting of the Marion County Medical Society which was held at the Fairmont Hotel. Dinner was served to the 42 members and six guests in attendance prior to the presentation of the scientific program. During a short business session, Dr. Joseph Owen Hayhurst was admitted to membership in the society.

Dr. Bland spoke to the society on "Obstetrical Hemorrhage" which was a most interesting and enlightening talk. In addition, there was shown the DeLee moving picture film on "Eclampsia."

AMOS H. STEVENS, *Secretary*.

MINGO COUNTY

Plans have been completed for the establishment of a hospital insurance plan in Mingo county, to be known as the "Hospital Association of West Virginia and Kentucky." The plan is modeled after

the Charleston and Bluefield hospital organizations, and does not cover medical or surgical service. The three hospitals included in the plan are the Williamson Memorial Hospital, the Matewan Clinic and the Methodist Hospital at Pikeville, Kentucky. The association will offer hospital insurance to individuals and groups, and all subscribers to the fund will have free choice of doctor and of any one of the three hospitals included in the organization.

G. W. EASLEY, *Secretary*.

MONONGALIA COUNTY

The Monongalia County Medical Society was host at the Tri-County meeting at Morgantown on the evening of May 6. Dinner was served at the Morgantown Country Club at six o'clock, following which the scientific program was presented. There was a good attendance from Monongalia, Marion and Harrison counties.

The guest speaker of the evening was Dr. C. C. Higgins of the Cleveland Clinic, Cleveland, Ohio, who talked on "The Prevention of Recurrent Calculus Formation." This was a most interesting presentation and a liberal discussion followed.

G. R. MAXWELL, *Secretary*.

OHIO COUNTY

Dr. W. James Gardner of the Cleveland Clinic, Cleveland, Ohio, was the guest speaker at the May 6 meeting of the Ohio County Medical Society which was held in the Solarium of the Ohio Valley General Hospital. His subject was "Surgical Lesions of the Cranial Nerves." A liberal general discussion followed.

Dr. William C. McCuskey was elected president of the Ohio County Medical Society at the May 20 meeting and will succeed Dr. W. M. Sheppe, who has served during the past year. Other officers elected to take office next fall, were Dr. Harold Harpfer, vice president; Dr. R. W. Lukens, secretary, and Dr. N. L. Haislip, treasurer.

Delegates to the state meeting at White Sulphur Springs in July will be Dr. Ivan Fawcett, Dr. Earl Phillips, Dr. Glen McCoy and Dr. S. W. Tretheway. Alternates will be Dr. E. S. Bippus, Dr. R. C. Bond, Dr. W. A. Quimby and Dr. R. B. Bailey.

W. C. D. MCCUSKEY, *Secretary*.

PARKERSBURG ACADEMY

Dr. Ray Bobbitt of Huntington was the guest speaker at the April 7 meeting of the Academy of Medicine of Parkersburg which was held in the Saint Joseph's Hospital. His subject was "Treatment of Urinary Tract Infections." He divided cases into medical and surgical groups, and stressed the conservative treatment of the medical group. He also drew attention to the importance of foci of infection, to the PH of the urine, and to the type of organism causing the infection. Discussion was conducted by Dr. B. B. Nicholson.

Dr. Nicholson presented an interesting case report of a 61-year-old male with difficult urination and nocturia. No enlarged prostate. History of renal calculus many years previous without surgery. At operation, found large bladder stone about size of tangerine. The specimen was exhibited.

During the business session Dr. M. A. Santer, Parkersburg, and Dr. C. W. Shafer, Walton, were admitted to membership. There was also discussion of limiting the sale of barbiturate preparations, and the activities of a chiropodist named Hill relative to practicing medicine.

Dr. H. M. Campbell and Dr. T. L. Harris, both of Parkersburg, were elected as delegates to the state meeting at White Sulphur Springs in July. Alternates named were Dr. O. D. Barker, Dr. P. C. Starkey and Dr. Richard Hamilton.

At the May 5 meeting of the society held at the Camden-Clark Hospital, Dr. James L. Wade presented a paper on "Gout", with three illustrative cases of the disease. Dr. R. H. Boice discussed the x-ray findings of gout, and Dr. A. R. K. Matthews outlined the laboratory procedures of accepted value.

During the business session, honorary membership was conferred upon Dr. H. H. Veon, Dr. C. L. Boyers and Dr. Rolla Camden.

The society voted that all doctors' offices should close on Thursday afternoons and evenings beginning May 12 and continuing through October until November 3, 1938. The society also voted to change the time of the Academy meetings from the first Thursday of every month to the first Wednesday, beginning with the first fall meeting of September 7, 1938.

Other actions taken by the Academy included reference of activities of chiropodist Hill to the chiropodist licensing board, approval in the present campaign for the early diagnosis of tuberculosis, and consideration of matters pertaining to public assistance medical and surgical service.

JAMES L. WADE, *Secretary*.

POTOMAC VALLEY

The regular monthly meeting of the Potomac Valley Medical Society was held at the Potomac Valley Hospital on the evening of April 28 with Dr. V. L. Dyer, president, presiding. The speaker of the evening was Dr. George F. Evans, Clarksburg, who spoke on "Abscess and Gangrene of the Lung." A general discussion followed.

During the business session, Dr. G. S. Gochenour of Moorefield was elected to honorary membership, and Dr. M. R. Bell of Keyser was admitted to membership in the society. A motion was carried protesting against the practice of medicine by nurses in Hardy county. The society voted in favor of establishing a venereal clinic in Hardy, Pendleton and Grant counties.

At the close of the business and scientific sessions, the members present were served a fine chicken dinner as guests of the hospital. The next meeting of the society will be held at Piedmont.

E. A. COURRIER, *Secretary*.

RALEIGH COUNTY

The regular April meeting of the Raleigh County Medical Society was held at Leslie's Diner on the evening of April 21 with 30 members in attendance. Dr. D. C. Ashton, president, presided. After a short business session, the scientific program was presented.

The guest speakers of the evening were Dr. A. P. Jones and Dr. L. C. Spengler, both of Roanoke, Virginia, and Dr. B. K. Peter of Beckley. Dr. Jones gave a paper on "Carcinoma of the Cervix." Dr. Spengler talked on "The Significance of Hematuria." Dr. Peter presented a demonstration of some foreign bodies removed from esophagus and air passages.

The May meeting was held at Leslie's Diner on the evening of May 18 with Dr. G. H. Barksdale and Dr. Vernon L. Peterson, Charleston, as guest speakers. Dr. Barksdale gave an interesting paper on "The Irritable Colon" and Dr. Peterson followed up Dr. Barksdale's paper with a lantern slide demonstration.

Mr. John Hart, Charleston Hospital Service manager, spoke briefly on the subject of hospital insurance and explained how the Charleston plan was operated. The Beckley Hospital and Raleigh General Hospital at Beckley and the Oak Hill Hospital have recently become members of the Charleston plan.

Dr. E. S. Dupuy spoke on the coming postgraduate refresher courses that are to be put on in Beckley next July. The society also accepted an invitation from Dr. Kyle M. Jarrell to hold the next meeting at the Pinecrest Sanitarium.

L. M. HALLORAN, *Secretary*.

Obituaries

L. J. BERNSTEIN, M. D.

Dr. Leonard J. Bernstein, prominent Brooke county physician, died at his home in Wellsburg on May 4, 1938, following an illness of several months' duration. He was 49 years of age and had practiced at Wellsburg for 21 years prior to his death. He was associated in practice with Dr. B. F. Harden who retired from active practice a few weeks ago.

Dr. Bernstein was born in Russia and came to this country in 1904. He received his academic education at West Virginia University and was graduated in medicine from Western Reserve in 1915. He had served as both secretary and president of the Brooke County Medical Society and was Brooke county health officer since 1933.

Surviving Dr. Bernstein are his wife and two daughters. Funeral services were conducted from the Bellaire, Ohio, synagogue on May 7.

M. H. TABOR, M. D.

Dr. Mack Henry Tabor, well known coal company physician of Crumpler, McDowell county, died at his home on May 16 at the age of 52 years. He was born at Camp Creek on August 15, 1885, received his academic education at Concord State College and was graduated in medicine from the University College of Medicine, Richmond, in 1910.

Dr. Tabor served for four consecutive years as a member of the West Virginia House of Delegates and during his last term, in 1933, was minority floor leader. He was widely known in medical and legislative circles throughout the southern section of the state. Dr. Tabor was a member of the Masonic orders, Knights of Pythias, and a former vice president of the McDowell County Medical Society.

Increased speed of travel and ease of intercommunication among nations have done and are doing some curious things in the way of spreading diseases.

General News

WHITE SULPHUR PROGRAM

The complete program for the seventy-first annual session at White Sulphur Springs on July 11-13, 1938, will be published in the Convention Number in July. Therein will be listed the names, titles, subjects and discussants, abstracts of subject matter, places of meeting and all other convention material and data. Prior to the publication of the Convention Number, we give below the general program outline and the chronological order of events.

On Sunday evening, July 10, will be held the annual meeting of the West Virginia Society of Industrial Physicians and Surgeons with Dr. G. H. Gehrman, medical director of the E. I. duPont de Nemours Company, Wilmington, Delaware, as the guest speaker. Also on Sunday evening will be shown the much talked of film, "The Birth of a Baby." This West Virginia preview of the film will be open to all Association members who care to attend.

The various sections of the scientific assembly will be held on Monday, July 11. Their respective programs follow:

Monday morning: Section on Pediatrics; essayists, Dr. J. C. Gittings, Professor of Pediatrics, University of Pennsylvania School of Medicine; Dr. George M. Lyon, Huntington; Dr. J. T. Thornton, Wheeling, and Dr. Marcus E. Farrell, Clarksburg.

Monday morning: Internal Medicine Section; essayists, Dr. Horace M. Korns, Professor of Medicine, Iowa University School of Medicine, on "Diagnosis and Treatment of Peripheral Vascular Disease"; Dr. W. P. Bittinger, Summerlee, on "Treatment of Syphilis"; Dr. D. A. MacGregor, Wheeling, on "Recent Advances in the Treatment of Pneumonia", and Dr. Walter E. Vest, Huntington, on "Hepatic Cirrhosis With Bruit" (Cruveilhier-Baumgarten Syndrome.)

Monday afternoon: Section on Surgery; essayists, Dr. Waltman Walters of Mayo Clinic, Rochester, on "Recent Developments in Surgical Treatment of Lesions of the Biliary Tract"; Dr. W. P. Sammons, Wheeling, on "Head Injuries", and Dr. N. B. Hendrix, Martinsburg, on "Fore Gut; Triumphant Entry to Conflict."

Monday afternoon: Eye, Ear, Nose and Throat Section; essayists, Dr. Lewis H. Clerf, Professor of Bronchoscopy, Jefferson Medical College, Philadelphia, on "Carcinoma of the Larynx"; Dr. William F. Beckner, Huntington, on "Treatment and Management of Nasal Sinus Diseases"; Dr. Sobisca S. Hall, Clarksburg, on "Accidents in Nasal Anesthesia", and Dr. F. T. Scanlon, Morgantown, on "Challenge or Change."

Monday afternoon: West Virginia Heart Association; essayists, Dr. R. J. Condry, Elkins, on "The Incidence of Heart Disease in Private Practice"; Dr. Horace M. Korns, Iowa City, on "The Effect of Pulmonary Emphysema on the Heart", and Dr. W. C. Stewart, Charleston, on "The Fourth Lead in the Electrocardiogram." At the close of the Heart Association meeting there will be a heart film prepared by the American Heart Association on "Cardiovascular Disease."

Monday evening: First meeting of the Association House of Delegates.

Tuesday evening: Scientific Assembly; essayists, Dr. Horace M. Korns, on "The Nature and Manifestations of Congestive Heart Failure", and Dr. Waltman Walters on "Hyperfunctioning Lesions of the Ductless Glands."

Tuesday afternoon: Essayists, Dr. C. Ben Pride, Morgantown (Oration on Surgery) "Injuries of the Knee Joint"; Dr. Lewis Henry Clerf on "Pulmonary Suppuration", and Dr. J. C. Gittings on "Non-Specific Lung Infections."

Tuesday evening: Second meeting of the House of Delegates and election of officers.

Wednesday morning: Essayists, Dr. C. B. Chapman, Welch, (Oration on Medicine) "Human Blood as a Therapeutic Agent"; Dr. Gordon McKim, Professor of Urological Surgery, University of Cincinnati, on "Nephroptosis", and Dr. Henry S. Ruth, Associate Professor of Anesthesia, Hahnemann Medical College, Philadelphia, on "Anesthesia."

Wednesday afternoon: Essayists, Dr. Nicholas J. Eastman, Professor of Obstetrics, Johns Hopkins University School of Medicine, on "Pyelitis in Pregnancy"; Dr. Edward L. Compere, Professor of Orthopedic Surgery, University of Chicago, on "Errors in Diagnosis or Treatment for Low Back Pain", and Dr. Irvin Abell, Louisville, president of the American Medical Association.

Wednesday evening: Annual convention banquet and ball, with Dr. D. A. MacGregor, Wheeling, as toastmaster.

Thursday morning: West Virginia Obstetrical and Gynecological Society; essayists, President's Address by Dr. W. W. Point, Charleston, on "The Conduct of Normal Labor"; Dr. F. A. Clark, Charleston, on "Ectopic Pregnancy"; Dr. W. N. Rowley, Huntington, on "Low Cervical Cesarean Section"; Dr. G. V. Morgan, Fairmont, on "Hydatiform Mole", and Dr. Nicholas J. Eastman, Baltimore, on "Pregnancy and Labor in the Bicornuate Uterus." Luncheon will be served at noon, followed by a short business session and then a round table discussion on "Indications for Cesarean Section" led by Dr. Eastman.

Among special luncheons already arranged for the White Sulphur Springs meeting will be those of the Alpha Kappa Kappa and Phi Beta Pi fraternities on Tuesday noon and the group of orthopedic surgeons on Wednesday noon.

CONGRESS OF PHYSICAL THERAPY

The seventeenth annual scientific and clinical session of the American Congress of Physical Therapy will be held cooperatively with the twenty-second annual convention of the American Occupational Therapy Association, September 12, 13, 14, and 15, 1938, at the Palmer House, Chicago. Preceding these sessions, the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians September 7, 8, 9 and 10.

The convention proper will have numerous special program features, a variety of papers and addresses, clinical conferences, round table talks, and extensive scientific and technical exhibits.

The instruction seminar should prove of unusual interest to those interested in the fundamentals and in the newer advances in physical therapy. The faculty will be comprised of experienced teachers and clinicians; every subject in the physical therapy field will be covered. Information concerning the convention and the instruction seminar may be obtained by addressing: The American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

A. M. A. ANNUAL MEETING

The eighty-ninth annual session of the American Medical Association will be held in San Francisco from Monday, June 13, at Friday, June 17, 1938. A large number of West Virginia members have already signified their intention of taking in the five day meeting. The House of Delegates will convene on Monday, June 13, the Scientific Assembly on Tuesday, June 14, and the various sections of the Scientific Assembly will meet on Wednesday and subsequently for the remainder of the session.

Among the travel features incident to the A. M. A. meeting will be the American Express Company deluxe tour and the "Golfers' Special" by boat from New York to New Orleans and thence overland through Houston, Galveston, San Antonio, Los Angeles, Del Monte, San Francisco; returning through Portland, Seattle, Vancouver, Lake Louise and Banff.

The American Express tour will take in the Indian Pueblo District, the Grand Canyon, Southern California, Catalina Island and San Francisco. There will be two return routes, one through Portland, Seattle, Victoria, Vancouver and the Canadian Rockies; the second through Yellowstone National Park, Salt Lake City, The Royal Gorge, Colorado Springs and Denver.

PROPOSED AMENDMENT

Under authority of Section 1 of Article XIV of the Association Constitution relative to amendments, we publish below the proposed amendment to Section 1 of Article V of the Constitution introduced at the Clarksburg meeting last year by Dr. Claude B. Smith, Charleston, and which will be voted upon at the White Sulphur Springs meeting next July. Dr. Smith's resolution follows:

Be it Resolved, That Section 1 of Article V of the Constitution of the West Virginia State Medical Association which now reads: "Section 1, The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component county societies; (2) the councillors; (3) all ex-presidents and (4) ex-officio the president and treasurer of this Association."

Be hereby amended to read as follows:

"Section 1, Article V, The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component county societies; (2) all ex-presidents and (3) ex-officio, the president, the two vice presidents and the treasurer of this Association. The councillors shall attend the meetings of the House of Delegates and may participate in all discussions but shall have no vote."

COLLEGE OF PHYSICIANS

More than two thousand Fellows of the American College of Physicians gathered for the twenty-second annual session in New York on April 4-8, 1938. West Virginians accepted into Fellowship at the New York meeting were Dr. James Lewis Blanton, Fairmont; Dr. Clement C. Fenton, Morgantown; Dr. Luther Rush Lambert, Fairmont and Dr. Arthur Lee Osterman, Wheeling.

In addition to the above, West Virginia Fellows attending the session were Dr. D. C. Ashton, Beckley; Dr. A. H. Hoge, Dr. E. W. Horton and Dr. O. G. King, Bluefield; Dr. P. A. Tuckwiller, Charleston; Dr. L. C. McGee and Dr. R. J. Condry, Elkins; Dr. Anthony Vandril and Dr. David Salkin, Hopemont; Dr. O. B. Biern, Dr. F. C. Hodges, Dr. Walter E. Vest and Dr. R. M. Wylie, Huntington; Dr. F. R. Whittlesey, Morgantown; Dr. James L. Wade and Dr. A. C. Woofter, Parkersburg; Dr. F. J. Holroyd, Princeton; Dr. Halvard Wanger, Shepherdstown; Dr. Charles B. Chapman, Welch; Dr. W. M. Sheppe, Wheeling and Dr. A. R. Sidell, Williamstown.

OBSTETRICAL EXAMS

The oral, clinical, and pathological examinations for Group A and Group B applicants to the American Board of Obstetrics and Gynecology, will be held in San Francisco, California, on Monday and Tuesday, June 13 and 14, 1938.

An informal dinner for the diplomates of this board, their wives and others interested in the work of the board, will be held at the Palace Hotel, San Francisco, on Wednesday evening, June 15, 1938, at seven o'clock. Dr. William D. Cutter, secretary of the Council on Medical Education and Hospitals of the American Medical Association, will address the group, and the successful candidates of the preceding two days' examinations will be introduced in person. Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

INDUSTRIAL DOCTORS

Preventive medicine will be the keynote of the twenty-third annual meeting of the American Association of Industrial Physicians and Surgeons which will be held concurrently with the Midwest Conference on Occupational Diseases at the Palmer House in Chicago, June 6, 7, 8, and 9, 1938.

Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago, chairman of the program committee announces the most interesting program in the history of this organization.

Advance programs of the meeting are available to any doctor interested and will be sent without charge to any practicing physician interested in attending this meeting. The sessions will be open to any practicing physician in accordance with the educational program of the association to spread the propaganda of preventive medicine and absenteeism of employees.

The very constructive work being conducted by the American Association of Industrial Physicians and Surgeons to cooperate with general practitioners and specialists in not permitting the practice of industrial medicine to interfere with medicine and surgery in general practice is a refreshing thought to everyone in the medical field and this meeting of the association at the Palmer House should be productive of great good.

For an advance copy of the program, address Mr. A. G. Park, 540 N. Michigan Avenue, Chicago, Illinois.

GORGAS ESSAY CONTEST

Miss Frances Babin, a member of the 1938 graduating class of South Side High School, Memphis, Tennessee, received the Henry L. Doherty First National Prize of $500 for the best essay submitted in the Ninth Annual Gorgas Essay Contest on the subject "The Achievements of William Crawford Gorgas and Their Relation to Our Health." Miss Babin was one of more than eighteen thousand junior and senior high school students throughout the United States who competed in this year's contest.

BIRTH CONTROL INSTRUCTIONS

Dr. A. E. McClue, state health commissioner, has recently issued written instructions to all health officers and public health nurses in West Virginia relative to the State Maternal Health League which was recently organized here as a branch of the American Birth Control League. Dr. McClue advised the health officers and nurses that they would probably be approached by representatives of this league and asked to cooperate in its activities. For their guidance he set down the following policies of his department:

1. No birth control clinics as such are to be established and conducted by the health department.

2. Where there is established a prenatal clinic giving prenatal and postnatal examinations and it is the desire of the clinician in charge to give out contraceptive information where he feels such is indicated, then the public health nurse will cooperate in carrying out his instructions in the clinic.

3. No literature for distribution to the public, mechanical or chemical devices for birth control shall be distributed by public health personnel.

4. No articles must be written or talks made on this subject as a representative of the health department. If persons attached to the health department desire to carry on this activity, they must do so as individuals and not as a representative of the health department and outside their regular hours of employment.

5. Where families are contacted in the regular duties of the personnel, and it is felt that contraceptive advice is indicated then they should be referred to their family physician, or to the local birth control clinic, if such exists.

6. Nothing in these policies is to be interpreted as approval or disapproval of the State Health Department of this program. These policies are laid down for your guidance in your relationship with the Maternal Health League.

GOLDEN CLINIC DAY

The annual Golden Clinic Day of the Davis Memorial Hospital, Elkins, will be held on Saturday, June 25, 1938, according to a recent announcement by Dr. B. I. Golden. Included in the list of distinguished guest speakers will be Dr. Harry E. Mock, Chicago; Dr. George K. Feen, Chicago; Dr. Fred H. Albee, New York City, and Dr. Lester Hollander, Pittsburgh.

The morning session will be devoted to clinical demonstrations, with case presentations by the staff of the Golden Clinic. Discussion will be led by the guest speakers. All meetings will be in the Hitt Memorial Nurses' Home.

The West Virginia Heart Association will hold a luncheon at noon with Dr. Oscar B. Biern, Huntington, as leader of the group. Dr. R. J. Condry, Elkins, is in charge of the luncheon arrangements. The luncheon program will be a round table discussion with the guest speakers. All physicians desiring the discussion of a a specific subject are requested to communicate with Dr. Condry.

COURSES OFFERED

Dr. Karl Schaffle, chairman of the Asheville Tuberculosis Seminar, has announced that the course this year will be held at Asheville during the second week in July. The fee is ten dollars and the number of postgraduate students is limited to twenty. A copy of the subjects covered will be furnished to any doctor who is interested in the Seminar. Inquiries should be mailed to Dr. Schaffle, Arcade Building, Asheville, North Carolina.

Dr. Louis N. Katz of Chicago will give a two weeks course in electrocardiography for physicians at the Michael Reese Hospital from August 22 to September 3. Dr. Katz is director of Cardiovascular Research at the Michael Reese Hospital.

EYESIGHT HAZARDS

Remarkable advances during the past 30 years in the program for the protection of eyesight in America, pointing to the possible elimination of the principal diseases causing blindness, the reduction of eye injuries to a minimum, and removal of the chief reasons for eyestrain, are indicated in the Annual Report of the National Society for the Prevention of Blindness.

"Efforts to prevent loss of sight from disease were given added impetus in 1937 by the unusual progress of the campaign to stamp out syphilis, an important cause of blindness," the report says. "Laws requiring pre-marital medical examinations and a blood test for every expectant mother, when adopted by all states, are expected to bring about a great decline in the amount of blindness from syphilis—just as legislation requiring prophylactic drops in the eyes of infants at birth has eliminated ophthalmia neonatorum as a major cause of blindness among children.

"OUT OF BREATH"

The sensation of being "out of breath" has little or nothing to do with conditions in the lungs but is a matter of the failure of the circulation to take adequate oxygen to the muscles or of the chemical machinery adequately to use the oxygen in the repair of broken down glycogen and the elimination of lactic acid, Dr. Dudley B. Reed reveals in the second installment of his series on "Exercise," appearing in the May issue of *Hygeia*.

Woman's Auxiliary

STATE MEETING PROGRAM

The program for the fourteenth annual meeting of the Woman's Auxiliary to the West Virginia State Medical Association at White Sulphur Springs on July 11-13, 1938, has been practically completed and will be announced in full in the next issue of the JOURNAL. The general program outline is given below:

Registration will open at two o'clock on Monday afternoon, July 11, and the meeting of the executive board will be held at three o'clock. The first general meeting will be held at nine o'clock the following morning, July 12, with Mrs. E. H. Starcher, president, presiding. General reports of officers, standing and special committees will be made at that time. There will also be an address by Miss Dorothea Campbell of the West Virginia State Department of Health.

Luncheon will be served the Auxiliary, Tuesday noon in the Terrace dining room with Dr. Irvin Abell, president of the American Medical Association, as the principal speaker. Dr. C. W. Waddell, Association president, will also speak at this luncheon. No program is planned for Tuesday afternoon.

A breakfast for past Auxiliary presidents will be held at 8:30 o'clock on Wednesday morning, July 13. This will be followed by a general meeting during which final committee reports will be received. The meeting will close with the report of the nominating committee, and the election and installation of officers.

Luncheon will be served on Wednesday at the Casino. Guest speakers will be Mrs. W. Burrill Odenatt, regional program chairman of Philadelphia, and Mrs. Luther Bach, president of the Women's Auxiliary to the Southern Medical Association. Mrs. F. S. Harkleroad, president for 1938-1939, will then be presented. There will be a post-convention board meeting that afternoon with Mrs. Harkleroad presiding.

This will mark the close of Auxiliary activities. No meetings are scheduled for Wednesday afternoon. The annual convention banquet and dance will be held on Wednesday evening.

FAYETTE COUNTY

The Fayette County Medical Auxiliary met at the Faymont Hotel in Montgomery on April 12. Mrs. H. F. Troutman presided as president. Nine members attended the meeting.

The chief business considered was election of officers.

The next meeting was scheduled for May 19.

MRS. R. D. KETCHUM, *Secretary*.

LOGAN COUNTY

The Auxiliary to the Logan County Medical Society met on May 3 at the home of Mrs. J. W. Lyons, Holden. Mrs. D. S. Hess, president, opened the meeting. Twelve members were present.

Mrs. Harold Van Hoose gave a review of Paul de Kruif's book "Why Keep Them Alive." This was generally discussed.

Refreshments were served by the hostess assisted by Mrs. Hess. The June meeting will be held at the home of Mrs. W. F. Farley at Holden.

MAE PATTERSON, *Secretary*.

MARION COUNTY

On April 26 the Auxiliary to the Marion County Medical Society met at the Hotel Fairmont, Fairmont. Mrs. Philip Johnson presided. Twenty members were present.

Mr. H. H. Rose of Fairmont addressed the group on the subject "Local Hospital Community Service and Needs." This was a very interesting presentation.

Under business considered was election of officers. Delegates were named for the State Convention at White Sulphur Springs.

BLAKE LEMLEY RAMAGE, *Secretary*.

RALEIGH COUNTY

The Auxiliary to the Raleigh County Medical Society was formed at a luncheon meeting in Beckley, Wednesday, March 23. Mrs. W. W. Hume and Mrs. F. S. Harkleroad, president-elect of the State Auxiliary, presided. Mrs. W. V. Wilkerson, Highcoal, guest from the Boone County Auxiliary, and Mrs. H. F. Troutman, Page, guest from the chapter in Fayette county, spoke on the success and popularity of their respective Auxiliaries. Twenty-three ladies were present.

Officers elected were:

Mrs. Ross Preston Daniel, president; Mrs. E. S. Dupuy, president-elect; Mrs. J. H. McCulloch, first vice president; Mrs. W. W. Hume, second vice president; Mrs. J. E. McKenzie, third vice president; Mrs. S. A. Ford, recording secretary;

Mrs. B. B. Richmond, treasurer; Mrs. D. C. Ashton, corresponding secretary.

* * * *

The Raleigh County Auxiliary held its second meeting April 25, having luncheon at the Beckley Hotel. Mrs. Ross P. Daniel, president, presided. Twenty-three members were present. The business session was confined to the discussion of committee activities and future plans. Other committee chairmen were announced as follows:

Mrs. W. C. Mays, historian; Mrs. L. G. Houser, Hygeia; Mrs. F. L. Banks, exhibits and scrap book; Mrs. M. M. Ralsten, hobbies; Mrs. L. M. Halloran, public relations.

MRS. D. C. ASHTON, *Secretary*.

STUDY OF MEDICAL CARE*

The Board of Trustees of the American Medical Association recently adopted resolutions designed to assist and encourage state and county medical societies to collect information concerning medical needs and to formulate preferable procedures to supply these needs in accordance with established policies and local conditions.

In order to utilize the experience of various localities, some uniformity of procedure in the collection of information is necessary. The following suggestions are offered to state and county medical societies:

Objectives: To determine the prevailing need for medical and preventive medical services and the development of preferable procedure for supplying these needs.

Closer coordination of the local medical and preventive medical facilities to make the services more readily available and to eliminate duplication of effort, time, financial resources and personnel.

The American Medical Association assumes the leadership in encouraging state and county medical societies to undertake studies to determine medical needs.

State and county medical societies are urged to assume leadership in their respective jurisdictions in determining medical needs.

The preferable procedure for supplying these needs is to be determined on the basis of the need. The medical and health facilities now available should be utilized to the fullest extent in accordance with the established policies of the American Medical Association.

State and county medical societies should seek information concerning medical and health needs from every source that may have data pertaining to the subject. In some communities it may be necessary to request information and assistance from a considerable number of agencies interested in or actually providing medical care of special types or to special population groups. In other communities the number and variety of such agencies will be very small.

It is impossible to enumerate the sources from which county medical societies should seek information; however, the agencies which are most likely to have data concerning medical needs and the utilization of medical and health facilities are physicians, dentists, nurses, health departments, hospitals, clinics, pharmacists, welfare and relief organizations, governmental offices—such as county commissioners, township trustees, commissioners of the poor, and other governmental agencies to be mentioned later — philanthropic organizations, community chests, churches, parent-teacher associations, Red Cross chapters, and other individuals, agencies and organizations which maintain an interest in or endeavor to supply medical relief.

The county medical society should appoint a special committee to direct the collection of information. This committee should be charged with the responsibility of securing information from those agencies which have exhibited official or voluntary interest in the medical needs of the community. Such information can best be secured by separate, individual contacts. Public mass meetings do not often yield dependable information.

It will be necessary for county medical societies to consider well the number and qualifications of the persons who are to assemble the information desired. The number will depend on the size and details of the program undertaken and the resources available.

In many counties the work may be done satisfactorily by carefully selected volunteers. In other counties where the size of the project will be fairly large, it may be necessary to provide part or full time employees. It is of the utmost importance that the persons who are charged with the collection and analysis of the information have an appre-

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*From the Outline of Suggestions on the study and provision of medical care prepared by the Bureau of Medical Economics of the American Medical Association.

ciation of the values and processes in the practice of medicine. Many of the errors found in some of the studies that have been made can be traced to the work and interpretations of nonmedical personnel who had no appreciation of the elements involved in the care of the sick.

1. In making a study, it is desirable that every item in medical service should be treated from both the demand and the supply side so that the completed report will, so to speak, strike a balance. This will prove a check against some of the factual errors and wrong conclusions that have been reported in other investigations.

A preliminary survey, if carefully conducted, may be all that is essential in some small towns and rural districts. It should involve a thorough and complete report from the administrators of each agency, followed, where thought necessary, with a study by outside observers. The records of most institutions will make it possible to determine the extent of the demand on them for medical services. The total of this demand divided into satisfied and unsatisfied demands will constitute one important element in determining the general demand for medical services in the community.

Throughout the study an attempt should be made to determine as completely as possible the percentage of the persons in low income classes receiving care from public and private agencies; the percentage of total services given these agencies to the indigent and low income groups; the extent to which tax-supported institutions accept patients who are able to pay full rates, and the number of individuals or families that have been denied medical services which they have sought. It is of equal importance to discover, if possible, the number of persons who presumably need medical services but have not attempted to obtain such services for the reason that they do not desire medical care. Furthermore, there may be still another group of persons who need and desire medical services but who, for reasons that should be discovered, fail to seek medical attention.

It should not be concluded, from the foregoing suggestions, that the process of collecting information requires simply the recording of yes or no answers to some leading questions. Most of the desired data will require a search of records to obtain accurate and dependable information. In every phase of the study it is important that opinions and suggestions concerning the nature and extent of

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needs for medical services and the means to supply those needs include all phases of medical care for the indigent and low income groups.

The information from each individual, agency or organization contributing data to the study should be summarized or consolidated to present a complete statement of any community deficiencies in medical services to the indigent and low income groups, together with the recommendations for the preferable procedures to remove these deficiencies. The work of consolidation and analysis of data from the several independent sources will be the duty of the special committee of the county medical society. The consolidated report of findings and recommendations should be made in triplicate—the original to be retained by the county medical society, one copy to be sent to the state medical society, and the other copy to be sent to the Bureau of Medical Economics, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

Three hours of moderate outdoor exercise are better than many barbiturates as inducers of prompt, calm and restful slumber; physical fatigue tends to produce sleep; nervous fatigue does not.

Neighbor Journals

CANCER REMEDY DEATHS

Newspaper accounts of the death of 11 persons in Florida following injections of a preparation for the treatment of cancer only a few months after the elixir of sulfanilamide episode with a death toll of 76, in our opinion calls for a reiteration of the oft-repeated warning to Ohio physicians against the use of unapproved products and methods of treatment.

According to *The Journal of the American Medical Association*, "Rex," the serum used in Florida, is a product of the Biochemical Research Foundation of the Franklin Institute of Philadelphia, and is akin to "Ensol", made with a special substrate of cancer tissue.

The "ensol" treatment for cancer was first launched in October, 1935, by Dr. Hendry C. Connell, Kingston, Ontario. Warning against the use of "Ensol", *The Journal of the A.M.A.*, October 5, 1935, declared in part: "The account of the methods pursued by Dr. Connell in promotion of his product reveals procedures more like those

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of a charlatan than that of the scientific investigator. . . . Public officials, university officials and some Canadian physicians have been led into participation in the promotion of a project which will inevitably bring them grief. . . . Faith may move mountains but it is yet to be shown that it will cure cancer, even when given in the form of something called "Ensol."

It is reported that "Ensol" and "Rex" have been sent broadcast, without charge, with a view to obtaining experimental therapeutic evidence. Neither product has been licensed for interstate sale. Manufacturers of the products have been absolved by government agencies from "intentional guilt in the preparation of the serum."

In our opinion, the situation calls for placing the responsibility on two sets of shoulders. First, it's high time Congress enacted legislation to prohibit shipment of dangerous medicines. Second, in order to properly fulfill their moral responsibility to their patients, physicians must use only such products and methods of treatment as have been tried and approved.—*Ohio State Medical Journal.*

THE OTHER FELLOW'S BUSINESS

A mid-western grocer and a New England merchant have been advocating the socialization of medicine, though not of the grocer or merchant. Both the gentlemen have contended that doctors make too much money and hold that medical services should be given to the people tax free or else at most infinitesimal cost. There are very few rich and comparatively few well-to-do medical men. Many grocers and merchants have grown in a few years from poor men to millionaires; some were even accused of profiteering in food stuff and clothing during the war. The contrast between the financial status of both grocers and mercantile dealers and physicians is sharp.

The inconsistency of the present day attempt to socialize "the other fellow's business" was beautifully portrayed by Henry Swift Ives of Chicago, when he said:

"A Chicago suburban village referred to as a millionaire colony maintains a municipal electric light plant when not one voter in a hundred in this village would for a moment favor the socialization of his particular business."

"In a prosperous middle western city one of the leading advocates of a municipally owned traction line is a prosperous insurance agent, but he bitterly

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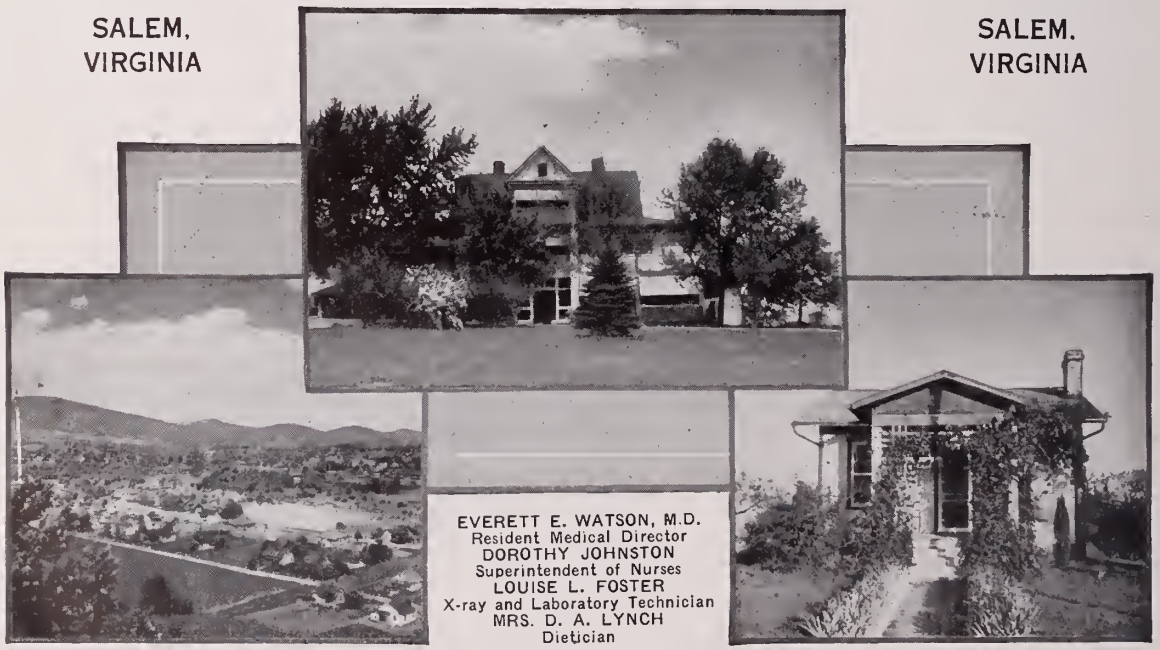

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opposes socialists in their effort to force the state into the insurance business."

"A lumberman in the far west is fearful that his state will go into the business of manufacturing fruit boxes for farmers at cost, yet he advocates compulsory state workmen's compensation insurance to the exclusion of private enterprise and competition."

"A meat packer advocates government ownership of the railroads but fights it for his own business. Numberless instances of similar inconsistencies could be given."

"It is remarkable that in industries most threatened by government ownership, many of the leaders do not seem to care what becomes of the other fellow in the same boat, provided they themselves keep a few feet ahead of the socialist sheriff with his writ of ejectment."

"The real issue in America today is not whether certain industries shall be socialized, but whether the institution of private property shall be maintained."

"It is too much to expect people to take seriously protestations of one industry against government ownership when we find the leaders of that industry advocating government ownership of somebody else's business."

There is no more reason why medicine should be socialized than there is for the socialization of every other industry. People are just as much entitled to free groceries, free clothes, free shoes, and every necessity of life as they are to free medical attendance.

Socialism will wipe out the rights of the individual and destroy the initiative and self-reliance which is the bulwark of our country.—*Illinois Medical Journal.*

HOSPITAL INSURANCE

A sharp warning was sounded, at the first national meeting of hospital insurance heads in New York City, on February 17-18, 1938, that the present rates must be cut, or the government may enter the field in competition and set up its own system of hospitalization.

The possibility that some sort of government control would supersede the present voluntary hospital care insurance systems, unless their rates were lowered to permit more of the public to participate, was held up to the national conference of hospital

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insurance executives by C. Rufus Rorem, of Chicago, director of the committee on hospital service for the American Hospital Association. Mr. Rorem disclosed that the National Security Board, through its bureau of research and statistics, was contemplating a study of hospital care insurance, and that similar studies were being made by private insurance groups.

City, state, and federal units of government, he said, were interested in the prospects that their free hospital wards could thus be relieved to some extent of patients who were able to pay a fraction of the cost of their hospitalization, and that tax loads would thus be lightened. At present, he said, one-third of all the patients in hospitals were charity cases, whereas only approximately one-tenth of the population was on relief, indicating that many of the charity patients would have been able to pay at least a small fraction of the cost of their hospitalization. He estimated that perhaps one per cent of the annual family income, or a minimum of $12, could be applied to hospital insurance.

"At the present time," he said, "a large number of people are being admitted to government hospitals—federal, state, or local—at the expense of the taxpayers.

"If the rates of the voluntary plans were somewhat lower, say an average of one per cent of the family income, the taxpayer would be relieved literally of millions of dollars by having a substantial proportion of people in government hospitals cared for through voluntary plans."

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Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
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ASSOCIATE EDITORS:
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TOXIC PROPERTIES OF CARBON DIOXIDE* **

By RALPH M. WATERS, M. D.
Madison, Wisconsin

When I was a youngster I remember coming upon my father's hired man in the barn one day in the act of drinking a large glass of clear, amber colored fluid. He explained that he had been advised to drink a glassful of his own urine twice a day as a remedy for some slight ailment, the nature of which I have forgotten. I am often reminded of this observation when I see carbon dioxide used as a therapeutic agent. The two chief pathways for the elimination of waste products from our bodies are the kidneys and the lungs. Nitrogenous elements and water pass out largely through the kidneys and carbon dioxide largely through the lungs. Any interference with kidney function dams back nitrogenous waste substances, resulting, when complete, in death within a few days. The necessity for the elimination of carbon dioxide through the lungs is still more urgent and immediate.

Complete rebreathing of a bag full of pure oxygen, permits ample oxygen supply while it interferes with the elimination of carbon dioxide. Under such circumstances, a normal individual makes an extreme effort to increase his breathing sufficiently to prevent increasing the carbon dioxide content of blood and tissues. Until the atmosphere inspired reaches a carbon dioxide concentration above that of the normal alveolar air (over five per cent), no increase in alveolar or blood carbon dioxide occurs. The minute-volume ventilation of the lungs is capable of increasing to ten or fifteen times the normal in an effort to maintain the balance, largely through increasing the depth of each breath though the rate increases as well. If rebreathing in the bag of oxygen is continued by a normal individual for some five or ten minutes, carbon dioxide in the bag will have accumulated to possibly seven or eight per cent at which concentration the overbreathing is unable to compensate and the blood and tissue content rises sufficiently to cause symptoms. The first feeling is one of inability to breathe deeply enough. As the carbon di-

*From the Department of Anesthesia, University of Wisconsin Medical School.

**Read during the meeting of the West Virginia State Medical Association, Charleston, West Virginia, May 26, 1937.

oxide accumulates to 10 per cent and beyond, loss of consciousness supervenes. Such loss of consciousness from excess carbon dioxide was recognized by Hickman early in the nineteenth century, and he used it before 1829 while he performed surgical operations upon dogs and recommended it for administration to human beings during surgery. During this period of hyperpnea, the blood pressure rises to extreme heights and the pulse rate increases only moderately. If the carbon dioxide concentration is continuously raised in the breathing bag and the oxygen replaced as it is used out by the subject, a concentration will be reached which no longer acts as a stimulant to blood pressure, pulse and respiration. Still later, depression of the circulatory and respiratory function occurs. Whether the convulsion which often supervenes during such an experiment is due to excess carbon dioxide directly, or whether it is a result of an interference with oxygen transport to the tissues, or to chemical changes of a more obscure sort, is not yet known.

SOME ARE HYPERSUSCEPTIBLE

An experience such as that described above is not ordinarily followed by serious consequences to life in a normal individual, although headache and malaise may last for many hours following. The importance of carbon dioxide toxicity lies in the fact that abnormal individuals, those who are ill from various causes, become in certain instances extremely hypersusceptible. Even the results of experiments with the administration of carbon dioxide enriched atmosphere to supposedly normal subjects show an extreme variation in the concentration of carbon dioxide required to produce a given change in blood pressure or respiratory activity. From what little we now know, we believe that previous conditions of disturbance in metabolic activity, temperature and certain drug effects predispose to hypersusceptibility.

The fact that carbon dioxide is one, if not the only, stimulus of respiratory activity has suggested its use in the therapy of depressed states. The ease with which pulmonary ventilation may be increased by permitting patients to inhale carbon dioxide-rich atmospheres has been spectacular. The procedure has been accepted without sufficient thought of possible dangers. If the administration of this gas were confined to its judicious use in sufficient concentration to bring depressed respiratory activity back to normal, no exception could be taken to the practice on any known physiologic ground. Certain misconceptions have arisen, however, as to the use of carbon dioxide for other purposes than that of restoring normal lung ventilation. Some of these misconceptions have arisen through the unfortunate practice of administering carbon dioxide mixed with oxygen. The supposed benefit of carbon dioxide therapy has often been due to the increase in oxygen which contacts the alveoli. In some circumstances, actual detrimental effects of the carbon dioxide have been masked in this manner.

The three most outstanding abuses of carbon dioxide as a therapeutic agent are based on three incorrect major premises.

1. The idea that shock is caused by a low carbon dioxide content of blood and tissues following overbreathing.
2. The belief that all inhalation anesthesia implies overbreathing, and hence results in low carbon dioxide.
3. Faith that administration of carbon dioxide and oxygen mixtures periodically, reduces the incidence and severity of postanesthetic and other pulmonary morbidity.

EFFECT ON ANIMALS

It has been shown that animals can be forced to overventilation until their blood contains less than fifteen volumes per cent of carbon dioxide, instead of the normal forty to fifty per cent, without extreme drops in blood pressure or other evidence of shock.[1] Animals suffering from very low blood pressure accompanying spinal anesthesia, when made to inhale excess carbon dioxide have shown a still lower blood pressure during such inhalation,[2] and we have many times observed a similar fall when carbon dioxide was

added to the inspired air of patients suffering from low blood pressure. On the other hand, oxygen alone administered by artificial respiration if necessary, has usually tended to restore the blood pressure toward normal.

MODERN PREANESTHESIA

The modern use of preanesthetic medication no longer permits of hyperventilation either before or during anesthesia. The tendency is rather toward a decreased minute-volume breathing and accumulation of carbon dioxide in the alveoli as was shown by work reported in 1931,[3] which has been verified in a paper by Hathaway and Orcutt, describing experiments in which they have analyzed tracheal, arterial and venous blood samples before and during inhalation anesthesia. To the advantage of our patients, we have reduced the rebreathing of anesthetic mixtures to a minimum and seldom or never add carbon dioxide to the anesthetic mask. The only exception is an occasional unseemly hurry to make rapid inductions and the occasional need for rapid removal of a toxic or anesthestic agent. A small stream of pure carbon dioxide is then poured over the patient's face to produce the desired hyperpnea.

The administration of carbon dioxide and oxygen mixtures intermittently, either at the end of operation or in the wards following recovery has, in our hands, resulted in a greater incidence of atelectasis or massive collapse and pneumonia than we now find since such treatment has been discontinued. We depend upon voluntary deep breathing of the patient under the nurse's direction for lung exercise when possible. Unconscious patients are still subjected to periodic carbon dioxide hyperpnea with atmospheric air as a vehicle, not oxygen. Thus the remote alveolar spaces which become inactive after hyperpnea, are not left filled with a rapidly absorbed gas such as oxygen.[4]

Whenever carbon dioxide is administered to a patient, whether by means of rebreathing or from a compressed supply, the necessity for careful individualization of dosage must not be overlooked. Certain physical signs are of aid in recognizing the occasional case of hypersusceptibility. Whenever hyperpnea fails to occur with inhalation of excess carbon dioxide, danger is near. If irregular or depressed or gasping breathing accompanies such therapy, discontinue it. Muscle twitchings of the small muscles of the face often precede a more generalized convulsion which can be prevented by promoting carbon dioxide elimination rather than administering it.

If the therapeutic use of carbon dioxide can be confined to well supervised and individualized administration sufficient to restore depressed breathing to normal, thus promoting an adequate oxygen supply to the alveolar spaces, no harm will result. However, if we continue to prescribe carbon dioxide and oxygen mixtures administered by untrained individuals as a cureall for every case of obstructed or depressed breathing, we will continue as we are now doing to cause the needless death of many persons each year.

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PATIENT'S DIAGNOSIS

In these days of widespread superficial knowledge of medicine even patient-made diagnoses are common—and very dangerous, declares Dr. Solomon Strouse in "The Doctor Is a Detective," his article appearing in the June issue of *Hygeia*.

The trouble with the patient-made diagnosis is that it lacks a basis of fact and knowledge. The patient is not a medical detective; the doctor must be. The diagnosis must be the result of exact observation and logical deduction and must be as consistent with the evidence as is the end of a good detective story. The first clues are noted in the history, painstakingly obtained from patient or family, with exquisite care as to the details.

GONORRHEAL PERITONITIS

By O. G. KING, M. D.
Bluefield, West Virginia

THE possibility of gonorrheal peritonitis complicating vulvovaginitis was first introduced to the medical world by West in 1858; but it was not until 1895 that Frank presented his case in which the diagnosis was established by laboratory findings. Fifteen authors had written on the subject and had reported cases during the interim with diagnoses based on clinical observations. Since that time scattered articles have appeared, and the total reported cases, including this one, number 67.

PROGRESS IS RECENT

One need not stretch his imagination to see that this is a condition seldom met, or to be convinced of its serious consequence. The story of gonorrhea is to be found in the deepest archives of medicine, but only during the past three decades has material progress been made in its suppression and control. We now know that the gonococcus is not confined to the genitourinary tract, as was formerly assumed, but that it will thrive in almost any part of the body.

Gonorrheal peritonitis is a complication of gonorrheal vulvovaginitis. It is far more fatal in childhood than in adult life, yet the mortality rate at any age is high. Two theories have been advanced to explain its etiology: one, that the condition is due to invasion into the peritoneum from the vagina via the lymphatics or tubes; the other, that it develops secondary to gonococcal septicemia. Believers in the second theory hold the first to be eliminated by the impossibility of infection spreading from the genital organs prior to menstrual life. The author is inclined to favor the first.

There has been a marked similarity of symptoms in all the reported cases. Usually the onset is sudden, with vomiting and sometimes gastric discomfort preceding generalized abdominal pain. Diarrhea is occasional, and prostration and cold extremities are not infrequent. A fever of from 102 to 105 develops, and the pulse may rise to above 140. The abdominal pain becomes localized, more commonly in the right lower quadrant than in the left, but not over McBurney's point. The muscular rigidity usually encountered in other types of peritonitis may be absent, and there may or may not be distention. Vomiting continues, usually until recovery or death.

Diagnosis is complicated. The differentiation from acute appendicitis and from pneumococcic peritonitis is difficult. Nevertheless, in any acute abdominal condition associated with vulvovaginitis, gonorrheal peritonitis must be given careful consideration. Final diagnosis may be influenced by the answers to the following questions: Has the patient vulvovaginitis? Has the possibility of its being gonorrheal been eliminated? Has patient been exposed to gonorrhea? An absolute diagnosis of gonorrheal peritonitis can be made only by the finding of gonococci in the peritoneal fluid.

SURGICAL INTERVENTION

According to most writers, surgical intervention is not the better method of treatment. All are agreed, however, that the risk of an exploratory laparotomy in any doubtful case exhibiting acute symptoms is a far less evil than failing to recognize an acute ruptured or gangrenous appendix. A thorough analysis of the accompanying chart leads one to believe that the increase of mortality reflected in the operated over the unoperated cases may be an exaggeration. It must be kept in mind that diagnosis is not absolute unless the presence of gonococci is demonstrated by culture or smear. Of the 67 cases listed, only 21 were confirmed by laboratory findings; and of this 21, 13 were operated upon. Nine of the 13 recovered, three died, and the end re-

sult was not given in one. Recovery resulted in but 43 per cent of the unoperated cases in which an absolute diagnosis was established. Sixty-one per cent of the cases with diagnosis verified by culture or smear were operated upon. Sixty-eight per cent of all operated cases were proved by laboratory findings, while but 20 per cent of unoperated cases show definite diagnosis. Considered as a whole, the complete list reveals a 33 per cent mortality rate for the cases operated upon and a 30 per cent mortality rate for nonoperated cases. Is it not possible, and highly probable, that the number of cases with fatal results erroneously charged to the appendix in which no operation was done, more than balances the small difference in the percentages of the mortality rates?

Once the diagnosis of gonorrheal peritonitis has been established, treatment should be conservative. Bed rest, with symptomatic treatment to combat the vomiting, pain, diarrhea, or shock, are essential. Fluids should be given in abundance. Drainage is sometimes encouraged by Fowler's position. Because the activity of the gonococcus is greatly inhibited by temperatures ranging above 98, the wisdom of applying ice to the abdomen must be questioned. In my opinion, surgery is indicated in any case where there exists any reasonable doubt as to the correctness of the diagnosis.

Prognosis at best is none too good, and must necessarily be guarded. Sterility usually, but not always, accompanies recovery. The mortality rate of the cases in which end results were given was 32 per cent.

Comment is invited on one particular phase of the treatment employed in our case. We are convinced that recovery was hastened and aided by the transfusion of blood from the mother who several years previously had had gonorrhea and had been cured.

CASE HISTORY

M. J., a white girl, age eight, was admitted to the hospital March 22, 1936.

Family history was relevant, in that the mother had had gonorrhea several years pre-

GONORRHEAL PERITONITIS

Analysis of Reported Cases

Year	Author	Age	How Diagnosed	End Results	Operation
1886	Saenger	3½ yrs.	Clinically	?	?
1886	Loven	5 yrs.	Clinically	Death	?
1886	Hatfield	7 yrs.	Clinically	Recovery	No
1887	Ceppi	?	Autopsy?	?	?
1889	Caille	5 mo.	Clinically	Death	No
1889	Huber	7 yrs.	Clinically	Death	Yes
1890	Huber	4 yrs.	Clinically	Death	Yes
1891	Stevens	4 yrs.	Clinically	Death	?
1891	Penrose	?	Clinically	?	?
1892	Wertheim	2 yrs.	Clinically	Death	Yes
1892	Charrier	4 yrs.	Clinically	Death	?
1892	de Guillamont	8 yrs.	Clinically	Recovery	?
1893	Menge	?	Clinically	?	?
1894	Marfan	9 yrs.	Clinically	Recovery	No
1895	Marfan	11 yrs.	Clinically	Recovery	No
1895	Frank	?	Lab. Findings	?	No
1896	Baginski	12 yrs.	Autopsy	Death	No
1897	Cushing	?	Lab. Findings	?	Yes
1897	Mejia	5 yrs.	Lab. Findings	Death	No
1898	Braquehaye	4½ yrs.	Clinically	Recovery	Yes
1901	Comby	6 yrs.	Clinically	Recovery	No
1901	Comby	6 yrs.	Clinically	Recovery	No
1901	Comby	8 yrs.	Clinically	Recovery	No
1901	Comby	11 yrs.	Clinically	Recovery	No
1901	Comby	6½ yrs.	Clinically	Recovery	No
1901	Comby	6½ yrs.	Clinically	Recovery	No
1901	Comby	4 yrs.	Clinically	Recovery	No
1901	Comby	11 yrs.	Clinically	Recovery	No
1901	Zavadovsky	8 yrs.	Clinically	Recovery	No
1901	Braquehaye	3 yrs.	Clinically	Recovery	No
1901	Braquehaye	4 yrs.	Clinically	Recovery	No
1902	Dowd	7 yrs.	Lab. Findings	Recovery	Yes
1902	Putnam	6 yrs.	Clinically	Recovery	Yes
1902	Hunner, et al	10 yrs.	Lab. Findings	Death	Yes
1902	Hunner, et al	5½ yrs.	Lab. Findings	Recovery	Yes
1902	Sevestre	8 yrs.	Clinically	Recovery	Yes
1903	Northrup	11 yrs.	Clinically	Recovery	No
1903	Northrup	9 yrs.	Clinically	Recovery	No
1903	Galvagno	7 yrs.	Clinically	?	No
1903	Galvagno	4 yrs.	Clinically	?	No
1903	Galvagno	4 yrs.	Clinically	?	No
1904	Sevilleau, et al	12 yrs.	Clinically	Recovery	No
1904	Sevilleau, et al	6½ yrs.	Clinically	Recovery	No
1904	Welt-Kakels	2¾ yrs.	Lab. Findings	Death	Yes
1904	Dubreuilh	12 yrs.	Clinical	Recovery	No
1904	Dubreuilh	10 yrs.	Clinical	Recovery	No
1905	Baginsky	12 yrs.	Clinical	Death	No
1908	Pfaundler	Infant	Lab. Findings	Death	No
1910	Koplik	?	?	Death	No
1910	Koplik	?	?	Death	No
1910	Koplik	?	?	Death	No
1911	Goodman	7½ yrs.	Lab. Findings	Recovery	Yes
1918	Rivarola	8 yrs.	Lab. Findings	Recovery	Yes
1918	Rivarola	8 yrs.	Lab. Findings	Death	Yes
1926	Gleich	4 yrs.	Lab. Findings	Death	No
1927	Pignaux	10 mo.	Clinically	Recovery	No
1930	da Rocha	2 yrs.	Clinically	Recovery	No
1931	Macera, et al	9 yrs.	Clinically	Recovery	No
1932	Vest	4 yrs.	Lab. Findings	Recovery	Yes
1933	Vest	4 yrs.	Lab. Findings	Recovery	Yes
1933	Harris, et al	5 yrs.	Lab. Findings	Death	No
1933	Harris, et al	11 yrs.	Lab. Findings	Recovery	Yes
1933	FitzHugh	31 yrs.	Lab. Findings	Recovery	Yes
1934	FitzHugh	30 yrs.	Lab. Findings	Recovery	No
1934	FitzHugh	34 yrs.	Lab. Findings	Recovery	No
1935	McCann	10 yrs.	Lab. Findings	Recovery	Yes
1936	King	8 yrs.	Lab. Findings	Recovery	No

viously. Child had been sleeping with an active case of gonorrhea.

Chief complaint was vomiting, with severe abdominal pain.

Present illness began one week previously with an attack of acute gonorrheal vulvovaginitis. Treatment consisted of mercurochrome applied locally. On March 21, a dose of gonococcic filtrate had been given, followed by a reaction not uncommon to this type of therapy. The next day, the child developed generalized pain over the abdomen, accompanied with soreness, fever, and vomiting. The vomitus was greenish and watery, and continued until 3:00 p. m. when patient, crying with abdominal pain and soreness, was admitted to the hospital.

Physical examination revealed an acutely ill white girl of eight years, with a temperature of 102, pulse 140, and respirations 30. Head, eyes, ears, nose, throat, and chest were negative. There was no joint or skin pathology noted. The abdomen was markedly distended, of boardlike rigidity, and tender. Nothing could be palpated. Vaginal examination revealed a very marked vulvovaginitis with a moderate amount of discharge.

The patient was placed in Fowler's position and morphine sulphate gr. 1/24 given for relief. On March 23, the leucocyte count was 40,750, and 94 per cent polys. A transfusion of 115 c.c. citrated blood from the mother was given. Transfusion was repeated on March 26, this time of 100 c.c. Three days later, the patient was able to be out of bed, and in two more days she was discharged from the hospital as recovered.

CONCLUSIONS

1. While gonorrheal peritonitis is a rare complication of vulvovaginitis, it must not be overlooked in diagnosing acute abdominal conditions.

2. Laboratory examinations should be made of cultures and smears taken from the peritoneal surface or exudate.

3. An exploratory laparotomy is indicated in cases where there is reasonable doubt as to the correctness of diagnosis, and does not necessarily jeopardize recovery.

4. The efficacy of blood taken from donors who have been cured of gonorrhea is probably increased over that of blood from donors who have not had the opportunity to develop gonococcal antibodies.

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MANAGEMENT OF THE HANDICAPPED GOITRE PATIENT*

By ROBERT KING BUFORD, M. D., F. A. C. S.
Charleston, West Virginia

THE philosophy of thyroid surgeons, like their theology, depends on where they were trained and their environment, and is made to meet the demands of the state of our knowledge. For the most part we inherit our opinions; we are heirs of habit and mental custom.

The present discussion will deal with certain goitre problems that have given us much concern. The experience gained from the many pitfalls over a period of years in an active goitre clinic leaves definite, fixed impressions in the management of serious thyroid states. I am aware that some of them will not be orthodox.

LITERATURE IS CONFUSING

The existing chaos in goitre literature is very confusing to the student. The nomenclature of the American Society for the Study of Goitre, (1) diffuse nontoxic, (2) diffuse toxic, (3) nodular and (4) nodular toxic, is a step in the solution of the classification problem. The four varieties of thyroid disease represent not different types of thyroid disease but different degrees of the same basic pathology.

The handicapped goitre patient, or bad risk case, was at some time a good surgical risk. A discussion of some of the factors pertaining to this unfortunate group of patients may not be out of order.

The prevailing idea existing among a large group of the profession, that diffuse nontoxic goitre remains harmless and innocent after involuting into the nodular type, is unfortunate. In studying sections of the different types mentioned we fail to find where toxicity begins.

The basal metabolic rate is a valuable laboratory procedure in diffuse goitre where we are dealing with cellular hyperplasia and hypersecretion (true hyperthyroidism). We frequently hear the expression that a basal metabolic rate will be done to see if the patient has a goitre. There is no more logic in this theory than having a white and differential blood count made to see if a patient has appendicitis.

Nodular goitres do not show an elevated metabolism unless there is an associated cellular hyperplasia. However, a careful clinical and pathological study of the transition of the diffuse nontoxic type to the nodular toxic goitre will reveal periods of nervousness, elevated pulse rate, dyspnea, fatigue and occasional loss of weight. We find a number of so-called nervous breakdowns in this group. The important pathological finding is that of degeneration. The substance resulting from the degeneration is constantly bathing the myocardium, acting as an irritant, eventually leading to a goitre with cardiac manifestations.

The less impressive cases in which cardiac irregularities and general evidence of decompensation develop during a period of months or years even without toxic symptoms, likewise indicate that degeneration and not hyperplasia is the essential factor.

The heart is being constantly overdosed with a substance which does not cause anatomic changes in the myocardium. Epithelial hyperplasia is commonly found in such cases which suggests that the hyperplasia whipped up a failing heart with fatal results.

The mortalities occur in patients with cardiac manifestations such as alterations in rate and rhythm of long duration, rather than the degree of disturbance. The deaths are due to cardiac failure.

*Read before the Section on Surgery at Clarksburg on May 24, 1937.

From the Buford-Bailey Surgical Clinic.

The cardiac manifestations of hyperthyroidism are frequently misinterpreted as primary heart disease. The presence of auricular fibrillation in adults should incriminate the thyroid gland until otherwise ruled out. It is present in 85 per cent of all cases of congestive heart failure in thyroid disease. Disturbance of the heart rhythm occurs in 10 to 15 per cent of all the hyperthyroid patients.

USE OF IODINE

The introduction of iodine in the preoperative preparation of patients with hyperthyroidism has resulted in a marked reduction in the mortality, morbidity and stage operations in the surgical management of these highly toxic cases. The indiscriminate use of iodine over a long period of time, saturating them prematurely, producing an iodine-fast gland is handicapping too many patients and cannot be too strongly condemned.

In a hyperplastic gland Lugol's solution has its maximum effect on the histological architecture of the gland in three weeks' time. After this, iodine loses its effect, the gland passes into a state of chronic hyperthyroidism and normal or iodine remission cannot occur.

The clinical symptoms are masked, the basal metabolism is low, leaving the inexperienced the impression that the patient is not in a serious thyroid state. Alarming postoperative storms and fatal thyroid crises are frequent, and we discontinue iodine and put them on a high carbohydrate diet, send them home to obtain as much quietude and rest as possible for a period of three months. After this time, they, as a rule, will respond to Lugol's solution and a fair iodine remission is obtained.

There is a small percentage of cases (about five) of hyperthyroidism that is iodine refractory. As far as we can determine from the history, none had taken iodine. These cases are managed as hyperthyroidism was before the days of Lugolization. Stage operations are in order, ligations, right lobectomy, and after an interval of six weeks left lobectomy.

Recurrent hyperthyroidism we admit occurs occasionally following a radical subtotal thyroidectomy. However, we feel that most of these so-called cases of recurrent toxic goitre are in reality persistent hyperthyroidism. In other words, not enough of the gland was removed during the primary operation. If they have been receiving iodine over a long period of time, they are handled in the same manner as iodine fixed glands. If not, they respond to the usual preoperative preparation. We desire to emphasize the importance of blood calcium determinations to see if there was any parathyroid injury. The vocal cords should be examined by a competent laryngologist.

The symptoms of toxic goitre in the young individual are those of intense intoxication. The diagnosis is obvious, and the clinical course of the disease indicates the seriousness of the thyroid state. In older people with a lessened capacity for reaction, the symptoms are mild, the goitre is frequently small, the basal metabolism is low, the pulse rate is not striking and usually is not so high as in the younger group. The diagnosis is not made as a rule, until the disease is of long duration. These patients are poor surgical risks in spite of their mild symptoms. It is in this group that we have an occasional unsuspected death, being encouraged by the mildness of the symptoms to carry out too great an operative procedure.

SURGICAL HAZARDS

The surgical hazards in toxic goitre are nerve and parathyroid injury, postoperative hemorrhage, associated disease and postoperative hyperthyroidism. Assuming that the surgeon's training and experience has been adequate, technical complications should be infrequent. Recognition of visceral injuries and the factors involved in postoperative metabolic storms are necessary in the safe management of hyperthyroidism.

Cardiac hypertrophy and dilatation are frequent necropsy findings, but no structural changes are found. The liver is the seat of the most frequent changes. The hepatic le-

sions are intimately related in severity to the intensity and duration of the thyroidism. The secondary lesions in the liver and the heart can be prevented by early surgical treatment. Visceral injuries can be discovered by clinical tests before operation. This information suggests additional measures of safety are necessary in preoperative and postoperative care, including longer periods of preparation and the employment of stage operations in the removal of the goitre.

The liver damage in terms of liver function, does not indicate the type of risk presented by the cardiotoxic patients in whom the heart condition has probably become more important than the thyroid state. It is more important to realize that in thyroid disease there comes a time when the visceral damage wrought by the hyperthyroid state actually overshadows the initial thyroidism.

The study of the blood iodine level before and after subtotal thyroidectomy for hyperthyroidism is of interest to the goitre student, but blood iodine determinations have been done only in the larger clinics and teaching centers where they have access to the services of a biochemistry department. This laboratory procedure has shown an increase of blood iodine in about 70 per cent of the cases of hyperthyroidism before operation. The cases with normal levels were found to belong to the poor risk group and also a high incidence of recurrences. The procedure holds much promise for the future. For the time being it is too complicated and difficult for the ordinary clinical laboratory, and still remains in the research division. The blood cholesterol studies have proved to be of great value, especially in handling hypothyroid states.

SUMMARY

The management of the handicapped goitre patient resolves itself into individualizing each case, considering a poor risk patient as a law in itself. The morbidity and mortality rates are dependent on the duration of the disease and not the intensity.

We want to emphasize that nodular goitres after the age of twenty-five are not harmless or innocent and should be removed before visceral lesions occur in the liver and heart. Toxic goitre, especially of the nonactivated type, in old people, gives a higher degree of toxicity than the symptoms and findings suggest. Stage operations should be the rule instead of the exception.

The advent of iodine has revolutionized surgical treatment of goitre. However, there are certain refractory and poor risk cases of long duration that necessitate the employment of multiple stage procedures in order to keep the mortality rate down to the level necessary to encourage the early and good risk cases to come for operation. The indiscriminate use of iodine in adults cannot be too strongly condemned. The prolongation of its use has added to the definite surgical hazard. Lugol's solution is indicated only in preparing the patient for operation and postoperatively. In toxic goitre the maximum effect is obtained in three weeks.

REMOVAL OF THYROID TISSUE

We have from the beginning of our goitre experience urged and practiced the radical removal of all thyroid tissue possible without injury to the parathyroid glands and recurrent laryngeal nerves. The remaining tissue of the hyperplastic gland remains hyperplastic and continues to secrete thyroxin. The remaining portion of a nodular goitre continues to degenerate and produce a definite thyroid toxemia. Recurrent goitre is most often a persistence or an incomplete operation.

Toxic goitre patients with cardiac manifestations are given iodine and digitalis if they are decompensating. As soon as normal rhythm is restored they are gotten out of bed for an hour or more each day for a week or ten days before operation. Decrease or increase in the pulse rate and basal metabolism are important factors in evaluating operability and determining the proper operative procedure.

Thyroid storms are rather infrequent as compared to the period before the routine use of iodine in preoperative preparation. We

believe that a patient who develops a fatal thyroid crisis after having had preliminary medication, dies from hepatic insufficiency. If this be true, the logical treatment would be measures to restore liver function to normal. In cases of suspected liver damage we give glucose intravenously every six to eight hours, from three days to one week, in addition to a high carbohydrate diet. Sugar of milk is given in orange juice. We try to maintain a normal chemical and water balance.

MORTALITY COMPARISON

The medical mortality has equaled the surgical mortalities for a number of years in our clinic. The medical catastrophies practically all were first seen in a state of crisis, failing to respond to any of the usual measures employed. Some of them had been taking iodine over a period of months and years.

We believe that tachycardia in hyperthyroidism is a compensatory effort on the part of nature to supply the tissues with the increased supply of oxygen on account of the excessive oxidation taking place. We have no way of determining how much of the cardiac reserve is used up over a period of intense intoxication. Oxygen administered in a tent relieves the heart of some of the compensatory effort due to thyroidism, choking, strain and stress of the operation permitting complete pulmonary ventilation with a definite reduction of pulmonary complications. We have made it a routine for some time to place all bad risk cases in an oxygen tent immediately after returning from surgery for a period of twenty-four to seventy-two hours. We now have a series of over 500 cases. The results have been very gratifying, for the incidence of cardiac and pulmonary complications have been materially reduced. The patients who have a great deal of mucus (the so-called tracheitis cases) claim they are much more comfortable in the tent. Since becoming interested in oxygen therapy we have been surprised to find a high incidence of anoxemia after operation in general surgical cases.

We have used all kinds of anesthesia in our clinic. The ideal for goitre surgery is found in nitrous oxide gas and novocaine block. It is a controlable anesthesia. The mask can be removed when they are in analgesia, nerve function can be tested by having the patient talk, and coughing will aid in a more thorough hemostasis. This procedure is carried out routinely after the right lobe is removed before we start the second stage.

Team work, including the internist, laryngologist, laboratory worker, pathologist, trained assistants and nurses and last but not least an expert anesthetist, is essential for the proper handling of the handicapped goitre patient. When this is obtained there is nothing more gratifying in the practice of the healing art.

308 Medical Arts Building.

EXERCISE

"Beware of the man of reasonable muscular equipment whose psychologic, or spiritual, fires are hot. He is likely to accomplish more than you expect sooner than you expect," Dr. Dudley B. Reed admonishes in the third part of his series entitled "Exercise" appearing in the June issue of *Hygeia.*

Concentration plus the power of getting the utmost out of one's muscles has made many a 150 pound center a man to be reckoned with, the author declares. A good big man may be the best, but a small, fiery man will excel many a big man.

Concentration is but one psychologic factor in these results. Some men seem to be able to translate an inner fire into muscular activity.

It is said to be true physiologically that fatigue does not usually involve exhausted muscle but exhausted nerve. Either the nerve endings or some other part of their substance gives out, so that ordinary stimuli produce no results, but stronger stimuli do. A man apparently exhausted and receiving a sudden fright may do a respectable job of running.

Most boys and men are "practice athletes"; they do well in practice, but in competition they find that the auspices are not right, and they do not come through. On the other side of the fence are the "money players," players who are at their best when the stakes are highest, players who may err in practice but who rise to great heights of performance when in a crisis.

OPHTHALMIC POINTERS IN GENERAL PHYSICAL EXAMINATION

By T. MARTIN GOODWIN, M. D.
Elkins, West Virginia

A GENERAL physical examination which does not include an examination of the eyes is incomplete. It is my object to emphasize simple methods of examining the eyes while performing a general medical examination. Such examinations afford valuable aid not only in the diagnosis of the diseases of the central nervous system, but also in the diagnosis of constitutional affections and diseases of other organs.

PUPILS IMPORTANT

The behavior of the pupils is of great value in the diagnosis of many nervous diseases. The Argyll-Robertson pupil is a small pupil which does not react to light but contracts during accommodation. It is the most characteristic sign of an impending or beginning tabes, and may for a considerable time be the only one. Dilatation of both pupils is frequent. We must always consider belladonna poisoning and other drugs affecting the size of the pupils. Large pupils are seen in high blood pressure, or if there is an increased intracranial pressure, and small pupils are seen in low blood pressure or low intracranial pressure.

The appearance of the eyes is a good index to the severity of the disease from which the patient suffers. Swelling of the eyelids is recognized by most medical men. It may be due to local inflammation, paranasal sinusitis, nephritis, or thrombosis of the cavernous sinus. The white (conjunctivae) of the eyes do not always remain white. They may be red in hemorrhage, yellow in jaundice, pale in anemia, dusky in cirrhosis of the liver, and blue with fragile bones. The conjunctivae should always be examined in daylight and not artificial light. Subconjunctival hemorrhages occur frequently in children during paroxysms of whooping cough, less often in older persons during coughing, sneezing, vomiting, violent exertions, straining at stool or labor pains. Spontaneous hemorrhages take place often at night when the patient is asleep, in patients who have brittle blood vessels, and are apt to cause considerable fright. Such patients ordinarily are elderly and have arteriosclerosis, but sometimes they are young, and then it will be commonly found that the walls of their vessels have been weakened by some disease such as nephritis, syphilis, diabetes, malaria, scurvy or purpura. Small hemorrhagic spots on the palpebral conjunctiva are often the first evidence of embolic phenomena in bacterial endocarditis.

Protrusion of the eyeball is one of the cardinal signs of exophthalmic goitre, but Von Graefe's sign is present early, and often for a considerable period of time may be the only finding. (This is lagging of the upper lids in downward movements of the eyeball.) Local diseases of the orbit may also cause exophthalmos. A staring look may be caused by hyperthyroidism, although no exophthalmos is seen or measureable. Sunken eyeballs are seen in diabetic acidosis and in severe wasting diseases.

OPPORTUNITIES FOR OBSERVATION

In the eye we have conditions and opportunities particularly favorable for the observation of changes in the living tissues. It is the only organ where the blood vessels lie in full view, and every vascular lesion known to general pathology is here available for minute study under a magnification of about 15 diameters. (This is the magnification obtainable by examination with the direct ophthalmoscope.) The retinal vessels take part in general arteriosclerosis and its early recognition in the retinal vessels is of most vital

importance. Arteriosclerosis and an atheromatous condition of the retinal arteries with or without retinal hemorrhages, is a warning of impending cerebral hemorrhage. Retinal arteriosclerosis is often secondary to renal infections, but is frequent with syphilis, and also with diabetes. In nephritis, retinal hemorrhages are often flame-shaped or striated, while in diabetes they appear in the form of round spots, small in size. "Embolism of the central retinal artery" when it occurs in the middle-aged is usually an endarteritis obliterans, while the true "embolism of the central artery of the retina," especially when it occurs in a younger person, indicates endocarditis.

OPTIC DISC

The study of the optic disc may yield evidence as to the seat and character of general disease, or of diseases of structures outside the eye but near to it, and is often of the utmost importance in making a diagnosis. The optic disc varies in color and shape, hence color variation should not be taken seriously unless there is accompanying disturbance of the vision. The causes of optic neuritis are numerous and may be either general or local. The following conditions may cause optic neuritis: 1. Multiple sclerosis; 2. toxic conditions, such as diseases of the kidneys, burns, the use of ethyl and methyl alcohol and the excessive use of quinine, salicylates, iodoform, lead, arsenic and tobacco; 3. tumors or cysts of the basal portion of the frontal lobe; 4. acute infectious diseases such as erysipelas, mumps, tonsillitis, influenza, measles, malaria and pneumonia; 5. foci of infection in teeth, sinuses, tonsils, appendix, prostate, gallbladder, fallopian tubes and the genitourinary and intestinal tracts; 6. syphilis; 7. metabolic disturbances, such as diabetes, myelogenous leukemia and pernicious anemia; 8. lactation; 9. tuberculosis; 10. Leber's disease. When due to general diseases it is usually bilateral, while that due to local causes is likely to be confined to one side. Further progress of optic neuritis is spoken of as choked disc. The diagnostic significance of choked disc is extremely valuable. It indicates an increase of the intracranial pressure and affords strong presumptive evidence of a brain tumor as the cause. Primary optic atrophy is most frequently due to tabes or paresis, but it may be caused by trauma, pressure on the optic nerve, multiple sclerosis, pituitary disease, wood alcohol poisoning and a variety of other inflammatory and toxic conditions. The disc in this condition is chalky or bluish white and the surrounding retina is perfectly normal.

Abnormalities in the function of vision can be detected by the medical man in general physical examinations. An eye examination must follow an orderly routine. We begin with the eyelids and proceed to the deeper parts. Note the eyelashes for evidence of parasites and nutritional diseases (broken, missing or white lashes), both local and systemic in nature. Inspect the skin of the lids for signs of skin diseases of local and general origin, also for edema originating in disturbances of the occular tissues or more remote organs, (anaphylactic reactions, circulatory disturbances, parasitis diseases, ductless gland disorders.)

LID MOVEMENTS

Lid movements and lid position are worth noticing as they may be the key to such disturbances as Graves' disease, syphilis, cerebral arteriosclerosis and cranial nerve lesions. Examine the conjunctivae of the upper and lower lids as well as that of the sclera. The vessels of this tissue are directly visible and may be used as an index of systemic diseases just the same as those of the retina. A marked hyperemia of the lid margins and palpebral conjunctivae after refractive errors and sinusitis have been ruled out may indicate uric acid diathesis or nonarticular gout. Trachoma and various forms of conjunctivitis must be kept in mind while examining the conjunctivae and lids. Pressure on the tear sac at the inner canthus, may demonstrate pus or closure of the duct. If the palpebral conjunctiva of the lower lid is pale it is well to evert the lower lip to see if its color confirms the suggestion of a general anemia.

Ocular movements are to be checked by having the patient follow with his gaze (his head held immobile) a white-headed pin moved in the "six cardinal positions of gaze": 1. temporarily, 2. then up, 3. and down, 4. nasally, 5. then up, 6. and down. The movement in each eye is noted separately and in relation to the movement of the fellow eye. While the patient gazes at the pin the examiner covers the eye with a card and quickly uncovers it again. This is repeated in the "six cardinal positions" and is known as the screen or parallax test. If there is a sudden jumping movement of the patient's eye, muscular imbalance is present and one can determine whether it is paralysis or paresis. This test can be made in a few seconds and with a little practice the examiner can tell which muscle is involved.

In observing pupillary light reaction, the electric ophthalmoscope is used with a plus 10 lens in the opening. This not only magnifies the iris but forces the examiner to maintain the light at the same distance for each examination. Look for irregularity, inequality or immobility of the pupils. Large pupils in middle-aged adults make us suspicious of glaucoma, and pupils pinpoint in size suggest syphilis or morphine addiction. Slightly dilated pupils, among other things, suggest alcoholism and neurasthenia. We cannot discuss the valuable information obtained from the study of the eyegrounds.

Study the fundus reflex from a distance of 18 inches with an electric ophthalmoscope with no lens in the opening. Have the patient roll his eyes up and down, and watch for scars of the cornea, cataract, evidence of an old iritis and vitreous opacities.

VISUAL ACUITY TESTS

In making visual acuity tests one should be sure that the charts are clean, well illuminated and set at the necessary 20 foot distance. The eye not under test should be covered by a card and not the patient's hand. There are thousands of physicians today doing physical examinations who never test the visual acuity of their patients. Standard or 20/20 vision does not rule out severe eyestrain. Any optical supply house can supply a plus 2.00 spherical lens which is helpful in general examinations. If a patient can read 20/20 through such a lens, he is far sighted and needs a thorough test for distance glasses. A person who cannot read a telephone book at eight inches needs a more elaborate examination for reading glasses. Always test the color field by flashing small discs, red, green, white in front of the eye.

DETECTION OF VISUAL DEFECTS

Defects in the visual fields, unless very small, may be detected by a simple method. The patient and examiner sit facing each other with their chairs about two feet apart and with a good light coming from the side. The test object may be the examiner's finger, or better, a ball of cotton about one centimeter in diameter on a wooden applicator. The patient covers his left eye with a card, the examiner covers his right eye and both look steadily at the pupil of the other. The test object is then moved in a plane midway between the patient and the examiner, being brought into the center from the limit of the examiner's field, to right and left, above and below. If the physician's fields are normal, hemianopsia, quadrant defects or scotoma in the patient's fields may be detected. The presence of such visual field defects indicates pressure on the visual fibres at some point in their course through the chiasma and back to the occipital cortex.

The enumeration of the above points makes the examination sound more time consuming and elaborate than it actually is. The features herein outlined can, after the examiner becomes adept, be covered in ten minutes. The standard text-books on the eye may be consulted for refinements of technique. *Golden Clinic.*

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PELVIC INFLAMMATORY DISEASE*

By RUSSEL KESSEL, M. D., F. A. C. S.
Charleston, West Virginia

I ASSUME that the majority of the members of the Raleigh County Medical Society are engaged in general practice, and for that reason I shall discuss certain conditions which may be grouped under the heading "Pelvic Inflammatory Disease." Patients suffering with such conditions are frequently seen in our offices and the problem presented is most serious. At this time when surgical treatment is so fashionable one needs only to visit local clinics to witness radical operations, where women are desexed and subjected to mutilating surgery, to appreciate that conservative management is the proper procedure.

Pelvic inflammation is inflammation of the pelvis outside of the uterus. To this concise definition of inflammation which may involve fallopian tubes, ovaries, pelvic cellular tissue and peritoneum must be added those instances in which parametritis or metritis, or both, are found to accompany inflammation of any or all of the foregoing structures. The term "pelvic inflammatory disease" has often been used in referring to gonorrheal infection, but, used in its broader sense, it includes also postpartum and postabortal infections. Pelvic inflammation may arise from an abscess of the appendix and from sigmoid diverticulitis, or occasionally from a tuberculous infection of the fallopian tubes.

FEMALE ORGANS MORE VULNERABLE

The female pelvic organs are more vulnerable to infection than other intraperitoneal organs. This is because the anatomic structure of the organs of reproduction offers a passage from the outside of the body, through the vagina, cervix and tubes, to the peritoneum; also, the extensive lymph channels from the uterine cervix, and to a lesser extent from the corpus, form a pathway for infection when protective barriers are broken down. The placental site forms an excellent locus of infection from which organisms may be carried by the increased venous return accompanying pregnancy. Infection sustained as a result of coitus, instrumentation, operation, or the termination of pregnancy may remain localized at its original site, but not infrequently it follows its selective avenue to tissues in the pelvis proper.

GONOCOCCUS CHIEF CAUSE

The gonococcus causes about three-fourths of all the inflammatory lesions of the pelvis. Postabortal and postpartum infections are responsible for a large part of the remainder, while approximately five per cent, particularly of tubal lesions, are due to tuberculosis. Gonorrhea is responsible for more pelvic conditions necessitating surgical treatment than any other disease. The gonococcus is a surface invader, entering the mucosa through an abrasion which may be so slight as to be unnoticed. In its primary state it passes along the mucous membranes of the lumens of the urethra and the ducts of Bartholin and Skene's glands; from these places of lodgment the vagina, the os cervix and the cervical canal and its glands are entered. Here the disease is often arrested by the mechanical barrier of the viscid mucous secretion of the cervix. In fact, in favorable cases, the infection does not get higher than the internal os where the organism "burns itself out", sometimes within a few weeks and usually within a year. It is likely to remain active much longer in the urethra and in Skene's and Bartholin's glands.

When the protective barriers are dislodged or overcome by coitus, physical activity, overzealous treatment or menstruation, the organism passes from the cervix into the uterus

*Read before the Raleigh County Medical Society, Beckley, West Virginia, September 16, 1937.

through which it travels as a surface invader on the endometrium, which offers passageway but not a haven, and thence into the tubes. The mucosa of the fallopian tubes is a favorable site for the growth of the gonococcus, and the resulting inflammation is primarily confined to the mucosa along which it rapidly spreads toward the fimbriated end. The accompanying congestion and exudate may produce closure of the fimbria, or the infection may involve the ovary, or locally, the peritoneum. There is a strong tendency for the inflammed surfaces to adhere, which tends to wall off the infection and to prevent the development of extensive pelvic peritonitis.

DAMAGE IN THE LUMEN

It is rare for gonorrheal infection to pass through the walls of the fallopian tubes. In the lumen of the tube damage occurs from the destruction of the mucosa and from the formation of adhesions which may form sacculations in some areas; in others it narrows and may entirely obstruct the lumen. This is a common cause of sterility. The tube may become thickened and filled with pus, which at first is very infectious, the "hot tube." Later the pus is more watery and tends to become sterile, as far as the gonococcus is concerned, the so-called "cold tube." However, the "cold tube" may harbor secondary invaders, chiefly streptococci, which are usually responsible for the cellulitis which may accompany the disease. One or both ovaries may be involved by a surface infection or by a deeper abscess formation. The peritoneum may be more or less involved, resulting in local areas of peritonitis or in general pelvic inflammation; adhesions may involve the sigmoid, small bowel, uterus and bladder as well as the tubes and ovaries, producing more or less distortion in the normal relationship of the pelvic viscera.

In postabortal or postpartum infections, the predominant organism is the streptococcus which usually spreads through lymph channels and reaches the cellular tissue in the parametrial areas, in the folds of the broad ligaments and in the tissue overlying the rectum. The fallopian tubes are involved secondarily, and from without, rather than primarily, and from within, as in gonorrheal infection. As a result the tubes usually escape serious damage and sterility is not nearly so common after postgestational infections as after gonorrheal salpingitis.

The characteristic mode of travel and the lesions common to pelvic inflammation resulting, respectively, from gonorrheal and postgestational infections have been reviewed briefly because a recognition of these conditions is essential in the rational management of the disease. Emphasis should be placed on the precautions which must be taken against the development of postgestational infection or against the upward spread of an acute gonorrheal infection, as the case may be. Asepsis should be stressed in the management of labor and the avoidance of all unnecessary vaginal examinations and operative deliveries. The utmost care must be exercised in cases of induced abortion, especially when the abortion is incomplete, and in cases of febrile spontaneous abortion; the introduction of an instrument into the uterus is apt to disturb the protective barriers and release infection into the lymph or venous channels; in such cases products of conception may be removed from the os cervix, but it is unwise to enter the uterus unless dangerous hemorrhage occurs.

CARE NECESSARY

In the presence of acute gonorrhea involving the cervix care must be taken to prevent the extension of the infection beyond the cervix. More harm may be done by overzealous treatment than by no treatment at all. During this stage of the disease the physician may well apply a series of "dont's" for himself and for the patient. The patient should be warned to avoid physical activity, especially during the menses; to avoid pressure douches or any douche if the os is patulous; to avoid alcoholic drinks, and above all, to avoid sexual intercourse. During the menstrual period the cervix is softened and the protective plug of mucous in the cervical

canal is washed out by the menstrual flow, which forms an ideal culture medium. The physician will do well to avoid active treatment of the vagina, or cervix, or manipulation of the pelvic structures, which, by its trauma or disturbance of the protective barrier, may permit the upward passage of the infection. Rest in bed in the Fowler position, mild laxatives, or small enemas taken under special precautions to avoid producing proctitis, and light diet and sedatives, as indicated, will usually serve to avert salpingitis. In fact, recovery may take place without any other treatment. For many women this type of management is impossible, because of economic conditions, but even then the treatment should be gentle, possibly consisting only of the instillation of a mild antiseptic into the vagina until the infection quiets down.

If the symptoms indicate an acute inflammatory condition in the pelvis, the differential diagnosis is of primary significance. There are several acute pelvic and lower abdominal conditions with which acute gonorrheal salpingitis may be confused. Chief among these are acute appendicitis, acute pyelitis, tubal pregnancy, postabortive cellulitis and acute tuberculous salpingitis. A history of the presence of infection in the urethra or in Skene's or Bartholin's glands, a knowledge of gonorrhea in the consort or positive recognition of gonorrhea in the smear or of its growth in a chocolate blood-agar medium may determine the diagnosis.

SUDDEN SYMPTOMS

The onset of pelvic symptoms may be sudden, as in many of the previously mentioned conditions; the pain is pelvic rather than general abdominal and the tenderness is bilateral and lower than in acute appendicitis. The rise in temperature is usually greater in acute salpingitis than appendicitis or acute tuberculous infection; fever, if present, in tubal pregnancy, is not high. The leukocyte count may be increased in the various inflammatory conditions, but, as a rule, the rate of sedimentation of the erythrocytes is distinctly more rapid in pelvic inflammatory conditions. Gastrointestinal disturbance is more marked in acute appendicitis than in acute salpingitis. Acute pyelitis or pyelonephritis, while comparatively easy to diagnose if the pain is referred to the kidney, may be most difficult to diagnose if the pain is not referred and if there is pelvic tenderness. In the presence of acute salpingitis vaginal examination usually reveals tenderness on movement of the cervix or pressure on the corpus and tenderness and enlargement of the tubes. The history of a missed period followed by persistent slight uterine bleeding, a unilateral tubal mass which is less tender than an inflammatory mass of equal size, and a positive biologic test for pregnancy should indicate the presence of ectopic pregnancy.

BED REST IMPORTANT

The management of acute gonorrheal salpingitis consists essentially of rest in bed, hydrotherapy, Fowler position, adequate fluids and later a light diet, and mild laxatives or light enemas and little if any active treatment. Bimanual examination of the pelvis, if done, should be gentle. If carried out consistently, these measures have been followed by subsidence of symptoms in from 75 to 80 per cent of cases. The fallopian tubes tend to become "cold" or noninfectious several weeks after the cessation of fever. However, the acute phase of the disease may be characterized by a high or relatively high fever, sometimes chills, pelvic pain and splinting of the lower abdominal muscles, and sometimes distention. The leukocyte count may be high and the rate of sedimentation of the erythrocytes is greatly accelerated. These symptoms indicate the need for conservative supervision. When the clinical picture is indicative of diffuse pelvic peritoneal involvement, or perhaps, general peritonitis, opiates are given to check peristalsis and fluids are given intravenously or subcutaneously and not by mouth; duodenal drainage may be indicated. Surgical treatment of acute pelvic inflammation is contraindicated unless an abscess forms and "points" in an area which can be drained without the removal of tissue.

Recently much has been written concerning fever treatments. When the acute symptoms are prolonged various measures have been employed in an effort to fortify tissue resistance and to hasten recovery. Improvement sometimes follows artificial production of fever with its accompanying leukocytosis and acceleration of the blood flow. Artificial fever may be induced by the injection of foreign protein. This method has been employed for many years and has considerable merit. Boak, Carpenter and Warren have shown that most strains of gonococci are destroyed by comparatively low heat. A temperature of 105.8 degrees made benign 99 per cent of 15 cultured strains of gonococcus in four to five hours. The temperature of the human body can be raised artificially to as high as 105 to 107 degrees F. and maintained at this temperature for a number of hours under carefully regulated conditions without apparent harmful effects. Numerous investigations have demonstrated and successfully proven that the gonococcus could be destroyed when the heat of the human body was raised to a like degree. Various methods of producing heat in cabinets enclosing the entire body of the patient except the head have been devised and are now in use. Sufficient heat is produced to raise the rectal temperature of the patient to 105 degrees F. in sixty to ninety minutes. A body temperature of 105 to 106 degrees F. is maintained for about five hours on the first day of treatment. While the patient remains in the cabinet cold is applied to the forehead, and to counteract profuse sweating the patient is given copious amounts of iced salt water (0.6 per cent saline solution) to maintain a mineral and fluid balance. A competent nurse is in constant attendance and a physician is at hand. Treatments are given every third or fourth day. On the second and subsequent treatments the temperature of the patient is kept at 106 to 107 degrees F. for six hours. An average of six treatments is given. Other workers have increased the length of the fever treatments and reduced the number. They have often been accompanied by the use of vaginal diathermy or the Elliott vaginal bag at an average heat of 105 degrees F. This maintains a greater local heat than has been possible by raising only the body temperature. Such treatment is not without risk and deaths have been reported. The Mayo Clinic reported one death out of 2500 treatments of 555 individuals. The cabinet heat treatments have been followed by 85 per cent of cures in more than 200 cases of acute and chronic gonorrhea with or without tubal involvement at the Mayo Clinic. Recently nineteen out of twenty-one patients had negative cultures after only one treatment of fever lasting ten hours.

OTHER SIMILAR CONDITIONS

When chronic inflammation of the pelvis is encountered, it is necessary to rule out certain other conditions before proceeding with treatment. Chief among these are: tuberculosis of the adnexa, chronic diverticulitis of the sigmoid, infected uterine myoma, infected ovarian cyst, chronic appendiceal abscess, and pelvic endometriosis. All of these conditions may simulate chronic pelvic inflammatory disease, and it is not always possible to make the differential diagnosis. A carefully taken history, examination of urethral and cervical smears, a determination of the leukocyte count and sedimentation rate, and a painstaking bimanual examination will usually make possible the correct diagnosis. When inflammatory disease of the pelvis has become of such a size that it may be confused with infected fibroids or infected ovarian cysts, the exact diagnosis does not remain of great importance because surgical interference is as a rule required. Usually, the diagnosis of subacute or chronic pelvic inflammatory disease may be made with reasonable certainty. It is not always possible to determine whether the condition is associated with, or secondary to, gonorrheal salpingitis or is a sequel to pelvic cellulitis resulting from postgestational infection. Although for practical purposes these conditions differ in their etiology, they may nearly always be considered together insofar as treatment is concerned.

Gonorrheal disease of the fallopian tubes tends to become self-limited unless reinfection occurs. If undisturbed, the disease may burn itself out and abatement of symptoms occurs in the large majority of cases. The recurrence of symptoms is often due to reinfection. On the other hand, the infectious organisms of pelvic cellulitis, chiefly streptococci, tend to remain viable in the affected tissues for many months, and sometimes for several years. Subsidence of acute symptoms and of fever do not necessarily indicate that the disease has become chronic, especially in the presence of cellulitis. The sedimentation rate of erythrocytes is the most accurate index of infection remaining in the pelvis.

TISSUE DAMAGE

When inflammation has passed the subacute stage there may be a great variance in the amount of residual damage. The damage to tissue following acute gonorrheal salpingitis will depend to a large extent on the degree of inflammatory reaction and the extent of involvement. When the infection is mild and confined to the fallopian tube there may be complete recovery. Commonly there is some injury to the mucous membrane of the tube, causing distortion or closure of the lumen or adhesions and closure of the fimbria, not infrequently resulting in sterility. If the lesion is more severe, there may be sacculations of watery fluid or of hydrosalpinx or pyosalpinx. During the acute process, oozing or dripping of pus from the fimbriated end is prone to involve the ovary, which may form, with the tube, an inflammatory mass. If the pus reaches the peritoneum, the rapid inflammatory reaction tends to wall it off quickly from the remainder of the pelvis. General peritonitis may occur. Curtis has called attention to "violin string" adhesions in the regions of the liver, attesting to general peritonitis resulting from previous acute gonorrheal salpingitis.

Usually, secondary invaders, streptococci, are responsible for extension of the inflammation to other pelvic structures, especially the cellular tissue. The degree to which the chronic changes resulting from this extension of inflammation interfere with the function of the pelvic organs and structures determines the patient's symptoms. Inflammation of the ovary may involve the capsule only and may be followed by sufficient thickening and fixation to produce pain or discomfort; infection of the interior of the ovary, while less common, is followed by more aggravated, chronic disability. This varies in degree from the formation of inflammatory cysts and derangement of ovarian function, with accompanying menstrual disturbances, to deep infection and abscess formation.

Postgestational or postoperative inflammation of the pelvis is caused chiefly by streptococci, which may remain viable in the tissue for many months. As a result, the cellular infiltration is slow to resolve, and thickening along the broad and other ligaments, in the parametrial tissues and in the cul-de-sac, may be palpated long after the subsidence of the acute infection. The tubes are involved as a perisalpingitis, and complete resolution frequently occurs so that sterility is not such a common sequela of this type as of gonorrheal infection; when the substance of the ovary is infected by streptococci, the outlook for restoration of normal function is not encouraging.

I have dwelt briefly with the more common sequelae of acute inflammation of the pelvis. In a large measure the extent of involvement and the symptom resulting therefrom will determine the management of the condition. Seventy-five per cent of patients with acute gonorrhea will recover if treated conservatively and a higher percentage of patients with acute salpingitis will recover sufficiently so that operation is unnecessary.

MANY UNAWARE

Unfortunately many women with acute gonorrhea are unaware of the disease or of its potential danger until painfully conscious of tubal involvement. Social or economic conditions, or insufficient or poorly directed treatment, are responsible for much chronic

pelvic inflammatory disease. These same sociological trends may be largely responsible for the increasing number of induced and criminal abortions with their sequelae of pelvic cellulitis.

When a woman presents herself with chronic or subacute pelvic inflammation the method of treatment to be employed depends on the extent of the tissue involved, the presence or absence of localized collections of pus and the patient's symptoms and disability. The economic status of the patient may determine whether it is feasible to continue a more or less protracted course of conservative treatment or to resort to surgical correction of the condition.

The criteria to be considered are the disability, the discomfort and the menstrual function of the patient. While correction of disability and relief of symptoms are evidently the most important, normal menstrual function should be preserved when it is possible; the young woman unsexed may have health but unhappiness.

NON-OPERATIVE MEASURES

The majority of patients with chronic pelvic inflammation can be cured or greatly relieved by measures other than operation. These measures are based on three essentials: time, rest and heat. The application of heat brings an increased flow of blood to the warmed area, with an accompanying increase in the number of polymorphonuclear lekyocytes, which aid in the destruction and absorption of the infection and its products. Various methods have been used to bring heat to the affected areas. Copious hot douches consisting of two to three gallons of water, are of value and may be used when more effective methods are not available. Diathermy is of value, but has not seemed to be so effective in bringing heat to the pelvic tissues as has the Elliott method. In the Elliott method of treatment a distensible rubber bag is inserted into the vagina through which is circulated hot water under regulated conditions of heat and pressure.

The technique of the Elliott treatment as has recently been determined is of distinct advantage in having the heat distributed over as large an area as possible and this varies with the size of the vagina and the distension of the bag. Needless to say the pressure of the bag must vary with different patients. The rectal bag is often more effective than the vaginal applicator. It is particularly of value when the vaginal application is impractical, when the broad ligaments are fixed, or when the lesion is beyond the effective reach of the vaginal bag. The rectal bag is contraindicated in gonorrheal infection.

Randall and Krusen in a recent publication reported their results in the treatment of two hundred and thirty patients with chronic pelvic infection. Forty-three patients with chronic gonorrheal infection were treated by the Elliott method and by topical applications to the urethra or cervix, or both. One hundred and seventy-three patients with chronic nonspecific pelvic inflammatory disease were given the Elliott treatment. The results demonstrated that the specific cases showed a larger percentage of cures than the nonspecific cases.

In this group chronic parametritis or chronic cellulitis responded more slowly to treatment than did chronic inflammation of tubes and ovaries. The response to tuboovarian abscess was poor and a large percentage of patients had to be operated upon.

USE OF SULFANILAMIDE

Recently Dees and Colston reported a series of patients in which sulfanilamide has been used in the treatment of gonococci infections. The drug was given in divided dosages of approximately 70 grains daily for the first two days of treatment, 55 grains daily for three days and 35 grains daily from four to eight days. The drug was given by mouth. The effects of the use of sulfanilamide indicate the necessity for care in administration, because of occasional symptoms of lassitude or cyanosis or the appearance of fever, hepatic enlargement, jaundice, sulfhemoglogin-emia or evidence of destruction of erythrocytes. Saline cathartics are contraindicated

and apparently the drug is more effective if the intake of fluid is somewhat limited.

Preliminary reports indicate some favorable results, including a fair percentage of cures. However, the use of the drug in the treatment of acute gonorrheal disease is still in the experimental stage. Present indications are that it will prove to be of some therapeutic value in the treatment of these diseases.

OPERATIVE MEASURES

Operative measures for acute pelvic inflammatory disease should consist only of drainage of collections of "pus" which point in such locations that destruction of tissue is unnecessary. Failure to observe this precaution has been followed by an unnecessarily high mortality, and many of the surviving women who might have recovered without operation have needlessly lost tissue. Occasionally the abdomen may be opened, because the symptoms make this procedure necessary, to find that the disease present is acutely inflammed fallopian tubes. It is not possible to lay down a rule to be followed in such a situation except to remark that many surgeons have closed an abdomen after careful exploration.

Surgical treatment of chronic pelvic inflammation may be the method of choice for disabling pain or other symptoms resulting from damage to the tissues, when the condition has failed to respond to conservative measures carried out over an adequate period of time. The length of time operative measures should be deferred will depend on the rapidity and the degree of improvement, if the condition is improving, the history of repeated exacerbations or reinfections, the severity of symptoms, and on the degree of disability and the social and economic status of the patient. Given an equal degree of pelvic disease, chronic discomfort and disability in two patients, one of whom has means of support and the other of whom must earn her livelihood by physical work, operation might have to be done sooner in the latter case than in the former.

Operations may be done for the removal of irreparably damaged tissue producing disability or in an attempt to restore normal function. For example, a chronic tubo-ovarian abscess would need to be removed, whereas a fallopian tube damaged by inflammation, which had subsided, might be subjected to a plastic operation in an attempt to relieve sterility. Conservation of the menstrual function is desirable. When both ovaries are so badly damaged that there is no reasonable chance of saving some functioning tissue, both should be removed. If some ovarian tissue can be preserved then the uterus should not be removed unless it is so completely incorporated in the inflammatory mass or so damaged in itself that the operation would be incomplete without its removal. Following complete subsidence of the original inflammation, operations may be necessary for the relief of symptoms in such cases. For instance, as adherent retroversions, adherent prolapsed ovaries, dyspareunia, intestinal obstruction or sigmoid dysfunction causing painful defecation. The failure of some operations to relieve the symptoms of which the patient complains should make the surgeon cautious in performing operations on patients in whom sufficient tangible evidence for the symptoms is not revealed by careful search.

OPERATIVE TECHNIQUE

No attempt has been made to outline the technique or methods of operation. It is well to state, however, that operations for pelvic inflammatory diseases are made easier as a result of softening of adhesions and lines of cleavage in those patients in which the operation is performed after a course of fairly prolonged heat treatments.

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THE MANAGEMENT OF THE HEART IN PULMONARY TUBERCULOSIS

By EDWARD PODOLSKY, M. D.
Brooklyn, New York

THE heart undergoes certain changes in pulmonary tuberculosis which must be taken cognizance of in the proper management of the disease. Mainly these changes are in the nature of displacements, and these are of two kinds. First there are those which are due to a retractive process in the lung which causes the heart to be pulled over to the diseased side. The second type of displacement is in the nature of a compression or pushing over by a pleural effusion or by pneumothorax.

In the matter of retractive displacements of the heart there are now recognized five main etiological factors, one or more or all of which may act in any given case. These are: (1) unilateral disease; (2) fibrosis; (3) pleurisy; (4) cavitation, and (5) complemental emphysema on the opposite side.

1. Unilateral disease is of great importance. It seems that complete displacement of the heart is never found in bilateral pulmonary tuberculosis.

2. Fibrosis: Here the factor of unilaterality is also important. Bilateral fibrosis may tend to neutralize the opposing forces and cause very slight displacements of the heart. When there is an appreciable lesion in one lung with marked fibrosis there will always be a tendency for the heart to be pulled over to the diseased side.

3. Pleurisy acts in two ways. First, because of localized pleuropericardial adhesions it exerts a tug on the heart. Second, a more generalized pleurisy has an even more pronounced effect. It is well known that pleurisy, especially with effusion, is often followed by sclerosis. This quite frequently results in displacements sometimes so marked as to cause complete dextrocardia or sinistrocardia.

4. Cavities: It is easy to understand that where cicatricial contraction is going on around a cavity there is a tendency for the heart to move over as the cavity becomes reduced in size. The larger the cavity, the greater becomes the excursion of the heart, until we find, in some far advanced cases a complete sinistrocardia and such marked excavation of the left lung that the walls of the cavity are only half an inch thick. Bronchiectasis may bring about similar displacements.

5. Complemental Emphysema: Formerly it was thought that complemental emphysema was of great importance as an etiological factor. Lately it has been felt that it is only of secondary importance.

PROGNOSIS

As regards the tuberculosis process itself, displacement of the heart is in most instances an indication that fibrosis is taking place, and is therefore a good sign. Pollissier found that the prognosis in cases caused by cavitation is worse than those caused by pure fibrosis.

What are the effects of displacements upon the heart itself? If the displacement is slight

the effect on the heart is negligible, but if allowed to become pronounced, the heart is often drawn further over to the diseased side and its activities are seriously interfered with.

TREATMENT

Treatment must fulfill three conditions. First, the heart should be replaced as much to the normal position as possible. Second, the replacement should be permanent. Third, it must be accomplished in a manner which is not harmful to the already diseased lung.

Gunther has for many years corrected displacements by phrenicectomy. Theoretically, it is argued that a successful hemidiaphgramatic paralysis, with a consequent rise of the diaphragm, will by partial collapse of the lung restore the heart to its normal position. Gunther has noticed that the heart has moved back to normal by as much as 1.5 cm. in five weeks.

In some cases it is not necessary to resort to phrenicectomy. A more simple method is by breathing exercise. If every available part of the remaining lung tissue is brought into action by carefully planned and conducted breathing exercises, the diseased lung will expand and the heart will gradually be pushed back into normal position.

Phrenic evulsion is perhaps the best method for replacing the heart pulled over by the diseased lung. Breathing exercises are indicated in milder cases. Should phrenicectomy fail through the diaphragm not rising, breathing exercises are of no value and are in fact contraindicated, for expansion of the diseased lung is hindered, expansion of the healthy lung encouraged, and the displacement is likely to be made worse instead of better. Rather should the operative procedure follow the breathing exercise if the latter fail. Where, however, the displacement is associated with bronchiectasis, phrenic evulsion is probably the only method likely to become successful.

Some clinicians have found that breathing exercises may also be used as a means of preventing the displacement of the heart. Burnand, King and Hansen have reported some good results along these directions. These exercises should begin as early as possible.

More serious than cardiac displacements in tuberculosis is the extension of the tuberculosis process of the heart itself. This is not very common, fortunately, for once the heart has become the seat of the disease very little in the way of relief can be accomplished.

Tuberculosis of the myocardium was first described in 1832 by Townsend. Haberling in 1865 was able to collect 12 cases and Valentine in 1895 in his monograph on the subject was able to find only 36 cases. Carson, Oudenda, Gallauradin and Stefko added cases, and at the present time the total is 87 cases.

Tuberculosis of the myocardium is of three types:

1. Tubercles, single or more, in size from a pea to a goose egg, may project beneath the endocardium or pericardium or be buried in the myocardium. They are firm, whitish masses with caseous centers.

2. The miliary type consists of grayish, semitransparent masses which project as slight elevations beneath the endocardium. These are found most on the ventricular wall.

3. The third is the diffuse form which consists of a general tuberculosis of the pericardium.

TUBERCULOSIS OF THE MYOCARDIUM

Tuberculosis of the myocardium most often occurs in the right ventricle. The right auricle is next most frequently involved. The large tubercles occur most frequently, and the miliary variety is second in frequency.

There is no specific treatment for tuberculous involvement of the heart. If signs of failure intervene digitalization may be resorted to with some relief. If the involvement of the heart is slight the prognosis is generally good. In miliary tuberculosis the prognosis is always unfavorable.

7516 Nineteenth Ave., Brooklyn, N. Y.

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THE DOCTOR LOOKS AT SOCIALIZED MEDICINE

By ERNEST L. SHORE, M. D.
Atlantic City, New Jersey

THE Brookings Institute published estimates for the year 1929, during prosperity, that six million families had incomes of less than $1000; about twelve million families were below $1500; nearly twenty million families could not reach $2500. Only 16.3 per cent of all American families had incomes of $3500. Then the depression came and grew deeper until so many millions of people were destitute that Senator Borah and others stated in 1932 that 96 per cent of the wealth was owned by four per cent of the people. The resultant lowered standard of living reached such proportions that the work of nearly all charitable services broke down. But the doctors' charities did not fail. The doctors gave from 50 to 75 per cent of their services with no hope of ever being paid. Here, I refer mainly to the man in general practice, the family physician, who was temporarily forsaken by the public while money was available to see the specialist before the depression.

THE PROBLEM

For a specific example of how the doctors carried the load, I cite the money value of services to the ward patients in the hospitals of the city of Camden, New Jersey, measured in minimum standard rates. Including surgical operations, maternity cases, and daily calls to the ward amounted to $926,250. This amount is four times the amount contributed by all other groups including $150,000 from public taxes and $87,000 from private subscription. The doctors were certainly carrying their share! Translate this service to the 7000 hospitals of the whole country.

In Atlantic county the doctors give annually $500,000 in free services to the institutions and hospitals.

These figures do not include service given free in their offices.

Under the relief administration, some recognition of the doctors' burden was made by the government by sharing approximately half of the cost. The usual 25 per cent of non-paid services continued on in other economic groups. These circumstances furnished fertile soil for certain foundations, cults, social worker combinations and malcontents to attempt again to persuade the American people into socialized medicine.

A BAD SOLUTION

During this session of Congress, Representative Epstein and Senator Capper intend to introduce laws for the socialization of medicine. They will propose that all employees who cannot show an income of $3000 will be taxed and their employers will be taxed to make up a fund for compulsory health insurance. The liberty of spending one's own money for sickness is to be denied. The employee is to be compelled by law to

pay for a governmental bureau, clerks' salaries and to pay for his sickness also. In other words, he will be compelled to pay a dollar to political clerks to snoop into the private affairs of himself and his family when he spends four dollars for the care of illness. The doctor of his choice may not be available and he will be compelled to accept the services of one on the panel list. Socialized medicine sounds the death song of private medical practice and cripples medical progress.

DEFINITION

Socialized or state medicine applies to any arrangement in which the employer, employee and general taxes contribute to a fund to pay for health services to employees under a specified income level; in which the employee gives to a governmental bureau his liberty of spending his own money for medical services; in which the careful hygienic employee pays not only for his own illness but also for that of the careless, unhygienic employee; in which the costs of administration take away nearly twenty-five dollars out of every hundred dollars leaving much less for health; in which the unemployed poor, or indigent are not included so that social health insurance might be self supporting, and defeats its purposes eventually by steadily raising taxes to pay salaries to political clerks and sickness benefits to employees who will not work as long as they can draw money for being idle and more or less sick.

It was originally spoken of as "sickness insurance" but by reason of the bad sales psychology of the word "sickness" the sales name was changed to health insurance. Now you know that the possession of a beautiful document from an insurance company never prevented anyone dying; neither can state statutes keep anyone well. The only way really to insure your health is to have your doctor vaccinate you against smallpox, inoculate you with typhoid vaccine, give you the prevention of diphtheria and semi-annually examine you for remedial defects, et cetera.

METHOD IN ENGLAND

Suppose we accept the title and examine the health insurance laws. In England, they operate on both voluntary and compulsory basis. We are concerned only with the compulsory division. All manual workers and all employees receiving approximately $1250 annually are required by law to pay a stipulated amount to the state. The employer pays an equal amount. From the general taxes the state appropriates one-fourth of that paid by both employer and employee. So you see it is "sickness taxation" and not health insurance. Now what are the medical benefits? The employee is provided with treatment within the scope of general practice and medicines supplied. No specialized services and no hospital services are specifically within the act. His choice of physician is limited to those doctors who are listed by the state as willing to practice under the conditions of the compulsory law. Fifteen to twenty-five per cent of the total funds are required to pay the cost of administration and from this huge amount, the employee derives no benefit. In this country this amount would go to the political employees.

On October 11, 1936, John S. Steele of London, England, published in the *Chicago Sunday Tribune* the following opinion: "The system of state medicine, inaugurated in 1911 with a great flourish and with much enthusiasm, today has few defenders, even among its so-called beneficiaries. It has been publicly stated, on many occasions, by doctors, coroners, hospital officials and others who are engaged in working the system that the practice of medicine has been reduced from a profession to a trade, made slaves of doctors and druggists, and has bred in the people a dangerous reliance on hurried and inefficient doctoring, which has caused a serious decline in the national health average."

IN GERMANY

Bismarck gave Germany socialized medicine in 1883. In Germany the employee receiving 39 marks per week must pay 25 per cent of his income on the day he receives it

for income tax, old age insurance, health insurance, citizen tax, unemployment insurance, tax for aid of the unemployed, and bachelor tax, as well as other taxes. He has no choice of physician, neither has the physician any choice of patients.

During the two year period January 1, 1933 to January 1, 1935, 2,061 doctors resigned from the insurance panel to assume salaried positions in the German defense forces, to enter the German public health service, and to assume positions as heads of institutions for the care of the sick. During the same period 2,000,000 persons were added to insurance lists, probably due to their reduced economic status bringing them within compulsory laws rather than the attractiveness of the system, because there have been riots in protest against the system.

There were 2866 men and 852 women matriculating in the medical colleges in 1933-1934 session but in the session of 1934-1935 there was a reduction in entrants by one thousand men and over 500 women. To be a physician in Germany had lost its attraction for more than 1500 in one year. It is predicted that in three years time the number of graduates will only be half the normal number. On January 1, 1935 there was one doctor to 1,388 persons. Under the present system with the current shortage of students entering medical schools, there soon will be such a shortage of physicians that the health of the German people will be in serious danger.

QUACKS IN GERMANY

The rise of charlatans and quacks has been astounding in Germany and with the progressive decrease in the number of licensed physicians there will result still further increases in charlatanism. In Germany this group is known as the "heilpraktikers" and with the usual quacks it includes, masseuses, farmer wives, various sorts of nurses, and women of holy orders, all professing the healing art. On January 1, 1935 there were three heilpraktikers for every ten physicians and the total was 14,023 with 24 per cent being women. The total of heilpraktikers, midwives and bonesetters is 51,682 while the total of licensed doctors is 47,419. The quacks exceed the legitimate.

Germany, after fifty years of compulsory health insurance has become the happy hunting ground for quacks and is the only nation in the world to give official recognition and endorsement to practically all forms of quackery.

IN RUSSIA

Concerning Russia, Doctor J. S. McLester, formerly president of the American Medical Association, on his return from there, made the following statement: "It is particularly noteworthy that the government is contributing liberally to physiologic and other scientific research and that medical service, of a kind, is available to a vastly greater proportion of the population than ever before, but careful scrutiny convinces one that there are grave faults which are impossible of correction under the present system. The physician is merely a bureaucratic official and as such is deprived of initiative and incentive. Because of the lack of those things which stimulate physicians to greater accomplishment, I feel convinced that until the system is changed, medicine in Russia can never achieve the high degree of usefulness that now obtains in America; nor under present conditions can the social economic status of the Russian physician equal that of the American physician.

"The more one sees of European types of medical practice the more one wishes to preserve at all hazards that close personal relationship between physician and patient which is peculiarly characteristic of the American practice of today."

The proponents of socialized medicine say that the general health of the community might be better. The secretariat of the League of Nations' reports for the year 1934 show that the death rate per thousand in Uruguay is ten (10), and in the Argentine 11.8 without state medicine, while Chile had 26.8 out of every 1000 to die under socialized medicine. The infant death rate per 1000

births in Germany was 66, and Denmark 64 under state medicine, while in the United States 60, South Africa 61, and Australia 44, Sweden 47, Switzerland 46, Holland 43, and New Zealand 32. In the city of Santiago, Chile, with state medicine the infant deaths were 244 for every 1000 births. Diphtheria is a disease which shows fruits of accurate diagnosis and efficient treatment. In 1934 in Great Britain for every 100 cases 11.6 died, in Germany 11 died; while in the United States and Canada with no state medicine, no city went above six per 100 cases except New Orleans and Quebec; and Spain, Australia, and New Zealand had five or less. The figures show that the people receive better medical care in this country than anywhere in the world. The citizen in these United States would never be satisfied with the services of the German Krankenkassen.

SECURITY—A DELUSION UNDER SOCIAL SYSTEM

The American doctor is being offered security under compulsory health insurance. Where is he able to see any living example in any country on the face of the earth having such a system with any security for the doctor or the patient? The returns from this foreign system could not maintain an office acceptable in the eyes of the American public, much less provide a living for his family. The very nature of the practice of medicine, wherein a doctor must be in consultation with one patient and direct him on the particular road to his recovery, does not lend itself to mass production as does education. Therefore, discounting all the criticism heaped upon education branding it considerably as a failure, even accepting it as a social success, it can not be used as a criterion for medicine to follow. Teachers are government employees and the magazines and newspapers are replete with evidence of their hardships in influencing city rulers, councils, commissions and boards of education to maintain high standards for the schools. Teachers have been put out of work, salaries reduced and the annual increases in salaries designed to reward experience have been cancelled. In the annual report of the Works Progress Administration by Mr. Harry L. Hopkins for those on relief in 1935 there were 82,000 professional and technical workers of which over 20,000 were teachers. The security offered is a delusion.

PSYCHOLOGY POINTS AGAINST SOCIALIZED MEDICINE

There are at least two fundamentals in human psychological behavior which proves that socialized medical practice can not possibly serve any ultimate ends other than demoralizing the medical profession and slowing up of progress in public health. First, the unwillingness of a person to give himself without compensation sufficient to agreeably balance what he gives. This we will apply to the doctor.

The demoralization of the doctor will be accomplished through the strangling of his initiative. Why should he spend his energies improving himself and his service when he can not receive any more by harder work under a health insurance act? Why should he have been a doctor anyway at such great expense in money and in time? His diminished income will force him to live in and have his office in an inaccessible and undesirable part of the community. Consequently the type of average medical student will deteriorate. The cultured background of the oncoming doctor will not be of the same progressive character as we know it today. Those who would have entered the profession will seek positions offering greater rewards.

The second fundamental in human behavior is to value most what costs most. One will buy an expensive diamond and give no thought to the fact that it can not give service, or be useful as such. Apply this principle to the prospective beneficiary under state health insurance. The professional service from his doctor will have less and less value because he does not participate in the financial transaction.

What we obtain too cheaply we esteem too lightly; it is dearness only that gives every thing its value. When a person pays into a fund in the amount of a few dollars to have

the privilege of consulting his doctor anytime he feels like it, the helpful advice given is inevitably to be regarded lightly and probably doomed to be forgotten. The patient is not expected to realize the important thoughts in the doctor's mind which generates that advice. The fact that the patient does not follow the advice combined with the discouragements for the doctor, the logical trend carried to its ultimate conclusion spells a complete breakdown of public health and medical services. Toward this disastrous medical chaos the philosophy of socialized medicine is driving Europe today.

DAYS OF ILLNESS INCREASE

Under compulsory health insurance in Europe we find the worker losing from 15 to 30 days each year, while our workers lose approximately 10 days. Either the foreign worker is given inferior medical service or he is doing everything to remain away from work to get back most of the sickness taxes he has paid to the government. This is malingering and in some cases it is impossible for the doctor to tell accurately if the worker should return to duty; therefore, he is given a few more days off, while if he were required to pay the doctor for the visit and were not drawing money for sickness benefits he would be anxious to return to work. Add to these excess costs the costs of continuous additions to the lists of political clerks and administrators drawing salaries which in no way accrue to the benefit of the worker, but instead take away a steadily increasing amount of money which might otherwise be spent for his health if he had retained the liberty of spending his own money. After compulsory health insurance is in operation the lists of the sick mount to astounding figures. In England the arrangement was based on a sickness rate of approximately six per cent. The list of the sick and malingerers has raised as high as 28 per cent and in addition to the 25 per cent paid from general taxes as routine, there come steadily mounting deficits requiring as high as $5,000,000 to be added from general taxes in one year. In 1935 the number of prescriptions in England and Wales was 43,800,000 and in 1936 had increased to 66,000,000. With no epidemics and no increase in the death rate these figures illustrate the "bottle habit" of the British. In France the deficit for 1935 was 100,000,000 francs. In Germany the insurance employees, more or less political appointees, have increased by 10,000 during the passed 10 years and now number 6,000 more than the physicians.

Under the German Economy Decree of 1930 when the disabled had risen to 1,250,000, the government ordered a re-examination. Before the set date, 400,000 declared themselves able bodied and 300,000 were found able to work.

It has been observed that certain advocates have been less arduous in their efforts when it appears that they will not be placed in the position of administrators, but that doctors would administer the set-up of any plan.

VIOLATION OF THE FAMILY INSTITUTION.

Those of us who cooperated with the Emergency Medical Relief Administration can bear witness to the fact that this governmental bureau penetrated into the family life and affairs of those on relief, demanding to know and to record their private business before any grants of relief were given. The doctors were required to fill in the diagnosis of every relief patient on his monthly report. However, the ethics of organized medicine prevailed and succeeded in preventing that diagnosis from becoming a public record by having it detached from the name of the patient by the Medical Advisory Committee. If the details of any plan of compulsory health insurance compel the patient to pay a part of every consultation with his doctor a government clerk will demand to know the private life of the patient before the balance of the payment will be allowed. Some cost to the patient to be paid at the time the service is rendered is the only way to maintain some semblance of self-respect for the individual and will have the effect of preventing doctors offices from being crowded with

patients who are not in need of medical service. If the plan should be that the patient may see his doctor anytime he chooses, paying nothing extra, then the physician will be overburdened with people who forget what he told them the day before or last week. As a result he loses his greatest reward in his practice—that personal satisfaction of accomplishment; and his profession has degenerated to a monotonous trade. This is only one reason why so many European doctors are leaving their practice for other pursuits and why so many are seeking entrance to the United States.

For the five years prior to October 15, 1936 there were 843 foreign physicians licensed in New York State alone and 478 in 36 other states.

METHODS OF INSURANCE COMPANIES

The methods of various insurance companies particularly casualty or accident insurance have adopted the policy of influencing the employees of industry regarding what doctor he shall see when injured even for minor injury. Now every graduate when licensed to practice must pass examinations in surgery and is capable in all minor surgery. It goes without saying that all major surgery should be done by the specialist in surgery. However, the family physician should continue with his patient throughout the course of the injury and through the rehabilitation process. Nevertheless, there is posted in chain stores, and utility companies, the instruction to see the doctor appointed by the insurance company in a case of injury. The liberty of selecting his family physician is denied to the injured by the insurance company through the foreman or manager unless the injured takes a definite stand to preserve his liberty. The choice of physician has never been delegated by the individual to any insurance company and the right to select his family physician should be retained by the patient at any cost. But these companies are continually violating the rights of their injured employee by dictating who will attend him and where he shall be attended, even threatening to take away his job to enforce compliance with their wishes. The patient may even be required to discharge his family physician in the middle of the case and accept the services of one not of his choice, under penalty of losing his job. By the acceptance of common usuage the insurance companies are hoping to control completely the medical rights of employees of companies assured by them and direct them to certain physicians. In the light of these facts what will become of the people when these practices are extended to governmental bureaus and patients are directed to the doctors who bring in the most votes for the political organization leaders? The evidence itself insists upon the maintenance of the medical profession in its freedom to serve the community and to keep its practices entirely void of the pollution of politics.

HISTORY

Medicine has been on trial throughout the ages and will always be on trial. In a changing world of social customs, and social aspirations, there are few who can foresee the ultimate status or goal of medical practice.

When you read history you are surprised that medicine as a profession and as a group survived. The orderly procedure of service for public good was part of the medical thought when the doctor emerged from his pagan origin. Twenty-five hundred years before the Christian Era there was a planned economy in the Mesopotamian basin. Here we find that the death of a patient often was followed by the slaying of the doctor. Later Hippocrates and his rules for the practice of medicine caused public opinion of the early period to conserve and elevate the doctor. The Greek physicians taken as slaves by the Roman conquerors were made free men and given Roman citizenship.

In the late period of the western empire of Rome, the Emperor Diocletian devised a planned economy in which circuses, the dole, and the tax collector finally exterminated Rome and its western possessions. The sensuous and riotous living of the people, exhaust-

ing their wealth in physical strength and intellect, spending their material riches, and failing to replace their losses by the nobility of labor made it easy for Attila, the Hun, and his powerful warriors from northern and eastern Europe to drive the degenerated people to their eastern empire at Constantinople to perish completely with the invasion of the Turks in 1453.

They did not have a Thomas Paine, that great fighting editor of colonial fame and soldier of our own Revolution, to teach them that "Government even in its best state, is but a necessary evil." In the "American Crisis" Paine wrote, "These are the times that try men's souls. The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of their country, but he that stands it now deserves the love and thanks of men and women. Tyranny, like hell is not easily conquered; yet we have this consolation with us, that the harder the conflict the more glorious the triumph. What we obtain too cheap we esteem too lightly; it is dearness only that gives everything its value. Heaven knows how to put a proper price upon its goods, and it would be strange indeed if so celestial an article as freedom should not be highly rated." Even in a democracy when liberty has been delegated by the people to governmental bureaus it can seldom be regained for the individual.

CAUTION TO GOVERNMENT

The aim of modern government is to aid the citizen to lead the fullest and most satisfying life of which one is capable from innate capacity as a human being, interfering as little as possible, helping as much as possible. The aim is to aid the advance of the spiritual, intellectual, moral, and economic character of the individual without placing restrictions. Civilization is advanced by the summation of progress by all groups and not by governmental restriction of one group of citizens to push another group artificially. It is a false road to follow and does not lead to progress because there is direct loss to the whole in stemming the tide of the advancing group, robbing it to give to another group. There is not even a balance producing a status quo, for there is no gain of individual effort from the group helped. I do not refer to the biblical virtue of voluntary charity; I refer to compulsion.

MAN IS FALLIBLE

Both democracy and a very high standard of material living for all are new. Man is by nature desirous of possession but he will not work for it if he can help it. He looks more to what he sees in immediate prospect rather than to the ultimate good of himself, his family and his group. A man who does not bother to educate himself, who wants easy money regardless of how he gets it or of the consequences to others or himself, who declines to work if he can be supported by somebody else, who thinks he has a right to all he wants, is not likely to be successful and neither is the democracy successful which encourages this parasitic attitude toward government. Minority pressure groups arise and use the machinery of democratic government to advance their motives to the detriment of unorganized and less articulate groups. They do not wait for the great majority of the people to demand a change. They depend on the average person being too busy producing the wealth of the nation to have learned opinions on banking, money, price regulation, agriculture, foreign affairs, and public health. As a consequence, the selfish inroads of minority groups upon democratic government destroy the finances of the state, pull down the entire structure and in the resulting chaos be willing to give up self-government to any man promising false security. Mussolini and Hitler became dictators by offering security which has proved false.

Democracy can be sustained only by concentrating on the progress of the initiative and effort of the individual for the advance of civilization. The machinery of government works for its own destruction when it takes liberty from the individual. No organization and no government can be any better than the persons in its management

and when the saturation point is reached in taxes, in encroachments upon the individual, and in making parasites of all it can—then its sun sets.

The biological principle of the survival of the fittest is why dinosaurs do no inhabit the globe today and no matter how much the individual is impeded in his progress by the necessity to drag his neighbor along with him, the principle still holds and will continue to apply to the governments of the future as it has in the past. This principle may be opposed and modified temporarily by a generation of men, correspondingly retarding civilization, but it will survive long after a better form of government has supplanted even a democracy.

HISTORICAL

Medicine survived the intellectual darkness of a thousand years by passing with the Nestorian physician to the Arabs, to rise again in Spain and to be the first of the intellectual arts to rise from the Dark Ages. In the sixteenth century Andreas Vesalius gave us the science of anatomy; Ambroise Paré wrote the first surgery and William Harvey discovered the circulation of the blood. René Descartes in the seventeenth century wrote the first physiology and Thomas Sydenham the first principles of practice. In the eighteenth century at the cost of his own life John Hunter proved the transmission of venereal disease and Edward Jenner performed his first vaccination against smallpox. René Laennec of the nineteenth century invented the stethoscope and chest diagnosis, Phillip Semmelweiss taught clean obstetrics and William Beaumont the army surgeon showed the physiology of the stomach.

These are only a few of that never ending pageantry of medical immortals from whom we enjoy our heritage.

Prior to the World War the ultimate in medical education was a postgraduate course abroad at Vienna, Berlin, Paris or some other medical center. Since 1914 the glamour of foreign clinics has dimmed. Today, while the general public may be impressed to some extent by European training, the medical man is in no way overawed by his colleague who has returned with a certificate from one of the clinics across the ocean. We have come to realize that American clinics and American teachers are superior to any the Old World can offer. Most of the great strides in the art and science of medicine, during the past few decades were accomplished in the Americas. This is due to the fact that our brother physicians in every European state are struggling for existence in the quicksands of some form of state medicine.

The citadel of modern medicine is now on this side of the Atlantic. To prove it I need only to mention William C. Gorgas who made possible the Panama Canal, Walter Reed and Jesse Lazear who lost his life to prove the mosquito was the carrier of yellow fever; William Osler the greatest of medical teachers; Harvey Cushing of Boston who perfected brain surgery; Chevalier Jackson who gave us the bronchoscope, and Banting who gave us insulin. The medical profession in America has caught the torch in medical learning from a decadent Europe and will hold it high.

CONCLUSION

That high degree of ethics attained by the medical fraternity, unequalled in any trade, craft, or profession, and the glorious heritage of unselfish achievement handed down by many generations of practicing physicians did not have its origin in systems of regimentation with political preferment and lay control, but represents the resultant accumulation of individual and independent effort.

Therefore, in this flowering of medical knowledge and human intelligence, the doctor as a class has survived by reason of his ability to organize for a service to the community. For thousands of years medicine has united the aims and aspirations of the best and most noble of mankind. To destroy its treasures, is to discount all human endeavor and achievement as naught.

306 Atlantic Ave.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Vis medicatrix naturae is the only hope of the tuberculous patient. The "cure" consists essentially in maintaining as nearly as possible an optimum physiological balance. This balance is a delicate one, easily disturbed by emotions. The very knowledge that one has tuberculosis is, itself, a powerful depressant. Numerous worries, doubts and fears come to plague the patient in his long uphill struggle with this chronic disease. Therefore, the psychological aspects of tuberculosis play an important part in the treatment.

LOSS OF EQUILIBRIUM

The condition of the tuberculous person is one primarily of loss of equilibrium—first of his body chemistry, and then of his family situation, his job, and his whole mental attitude. A financial problem is almost inevitably present. All of the patient's human relationships are shifted. The husband or wife, the parent or child, the lover or the beloved, the friend, the business associate, the employer or his subordinates—all take on a different aspect. The patient must think differently not only of them, but of himself. He must literally make himself over.

This can happen only gradually, through the continued responses made to the new situation. Our personalities cannot be changed overnight, but they are built up by using our various abilities, just as muscles are developed through exercise. The abilities are ours by inheritance, but what we do with them is our own responsibility. No magical power from the outside can do for a man what he himself must bring about. Psychology can help him to learn how this "will to live" as William James once called it, can be used to help and not to hinder.

Emotion, as the word implies, is a moving force. Energy in the organism means increased metabolism and discharge of nervous impulses. Emotional states lead to activity of the organism somewhere, either externally or internally. If activity of the body be curtailed as in tuberculosis, energy is discharged in worry, fretting and anxiety.

The answer to the emotional problem is, in brief, first to recognize the emotional source or cause of the disturbance, and then to use the released energy in some way which will bring full satisfaction. For the tuberculous patient, achievement is far more difficult than it is for the healthy individual. He is, moreover, denied the ordinary relief of moving from place to place, with its variation of social contacts, and the help of a change of occupation by which pent-up restless feelings may be worked off.

All of us need some central stabilizing influence to which we can refer the meaning of our lives. Religion is such a stabilizer, and its therapeutic influence should be utilized.

DUTIES OF PSYCHOLOGY

Psychology must do more for the solving of life's problems than to offer a stone in place of bread. Psychology is valuable in understanding emotions and how to deal with them. One of the most potent emotions is fear. Its results may be seen clinically, as for example, in restlessness, loss of sleep, dilated pupils, disturbed digestion, secretory changes, and even in some cases increased blood pressure and temperature. It has been shown that the bodily effects of fear and rage involve increased activity of some of the endocrine glands, which in turn are innervated by the sympathetic division of the autonomous nervous system.

A practical way of aiding persons who are emotionally disturbed is to let them talk freely to someone they trust. "Well, how are you today?" cheerfully uttered by the busy doctor or nurse without pausing, will not invite the patient to unburden his deepest anxieties.

During the years of adolescence the psychological strains of living increase, along with the social responsibilities incident to growing up. The boy or girl becomes "self" conscious, not only by being easily embarrassed (which is the sense in which the term is most often used), but by the new feeling of "selfness" which begins to appear in the average child at about the age of twelve, together with the ability to deal with abstractions as well as with concrete objects. He becomes capable of regarding himself as apart from the surroundings which he has hitherto accepted without question. He can and often does challenge the established order beginning with home and parents and extending to the entire universe.

The person with tuberculosis must learn not only to control his emotions, but to use emotional energy constructively. Psychology teaches that instead of negation and denial, we shall see redirection of energy, and reeducation of the individual.

Psychological Aspects of Tuberculosis, Mary B. Eyre, Public Health Nursing, Vol. XXX, No. 5, May, 1938.

President's Page

The object of this communication is, in technical language, to overcome sales resistance. The time is rapidly approaching for the biggest event in the Association's year, the annual scientific and business session at White Sulphur Springs. Our Association is democratic, presupposing rule by the majority. The Greenbrier Hotel for our coming session is the choice of the majority of our membership expressed by its representatives. Statistics, however, show that attendance on previous occasions at the Greenbrier has been below the average. Ostensibly the reason for this falling off in attendance is the erroneous idea that the cost of living at the Greenbrier is beyond the means of the average doctor. Actually this is not so even in the face of present serious economic conditions. True, the per diem charge as compared with living at home or in a hotel of an average West Virginia city may seem high, but it includes so many items, tangible and intangible, as to bring it within the means of everyone of us.

Consider these advantages: The entire meeting under one roof. No parking problem. Luxurious beds; food and service seldom equaled, never excelled. No extra charge for banquet.

The Scientific Committee has labored effectually to produce a program of rare merit on which will appear some of the Association's best men as well as renowned teachers and clinicians from other states. Matters of great importance to organized medicine will be handled by the House of Delegates and the Council. Space for commercial exhibits has long been sold out. An ideal setting and careful arrangements presage one of our greatest meetings; nothing can thwart its success but your failure to attend. It is your meeting. Your duty to attend, if only for a day, should not be taken lightly.

If space permitted it would be a pleasure to emulate what more facile pens have done for over a century,—extol the distinguished characteristics of this renowned resort. "In America it's the Greenbrier" is not a mere catch phrase. An institution could not so long have been known favorably to two continents without genuine merit. Nestled among the Alleghenies in one of the most scenic and beautiful spots in America, like a chateau of some royal family, the Greenbrier in its prodigal beauty and enduring charm is the natural issue resulting from the union of man's artistry and nature's witchcraft, appealing to the love of beauty, providing rest for the weary body and serenity of mind. Though it has catered to the exacting demands of prince and potentate, presidents and statesmen, tycoons of the business world, its management knows equally well how to minister to the needs of the busy doctor exhausted from the monotony of daily duty; and don't forget the doctor's wife. Every woman has a secret desire for the enjoyments to be had in this fairyland. Pride in the most famous resort of our state, loyalty to our chosen profession, personal enjoyment for a few days, well earned and deserving, cry down any argument about cost and unite in a crescendo of "Meet me at the Greenbrier, July 11-13."

President.

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ON TO WHITE SULPHUR

The seventy-first annual meeting of the West Virginia State Medical Association will be held at the Greenbrier Hotel, White Sulphur Springs, on July 11-13, 1938. The complete convention program and full details relating to the White Sulphur session will be found elsewhere in this Convention Number of the JOURNAL.

Seldom, if ever, has our Committee on Scientific Work assembled such a distinguished assembly of nationally-known medical and surgical talent as has been secured for the White Sulphur convention. Leaders in almost every branch of medical science have accepted program assignments. Heading the list of honor guests is Dr. Irvin Abell, Louisville, president of the American Medical Association. Each sectional program is featured by one nationally-known leader. From the talent provided by our own membership roster, a comprehensive and well balanced schedule of scientific presentations has been worked out.

Meeting conjointly with the Association at White Sulphur will be the West Virginia Society of Industrial Physicians and Surgeons on Sunday evening, July 10, the West Virginia Heart Association on Monday afternoon, July 11, and the West Virginia Obstetrical and Gynecological Society on Thursday morning and afternoon, July 14. The four sectional meetings will be held on July 11; the Sections on Pediatrics and Internal Medicine during the morning hours and the Sections on Surgery and Eye, Ear, Nose and Throat in the afternoon. One nationally-known leader in each branch of medicine will be found on each sectional and special meeting program.

On behalf of the Greenbrier Valley Medical Society we wish to welcome every doctor and every doctor's wife to the White Sulphur meeting. We know that every member in attendance will enjoy a pleasant and profitable three day session.

REFRESHER COURSES

With ten geographical points established for the postgraduate refresher courses in obstetrics and pediatrics to begin on July 18, it is hoped that every physician in the state will have an opportunity to attend. The county medical societies sponsoring the courses this summer include Eastern Panhandle, Potomac Valley, Wetzel, Lewis and Marion societies in the northern circuit and Logan, McDowell, Fayette, Raleigh and Greenbrier Valley societies on the southern circuit.

The courses will open simultaneouly at Martinsburg and in Fayette county on Monday, July 18, and will continue for five consecutive weeks throughout the two circuits. The courses for the northern district will be given by Dr. L. H. Douglas, Professor of Obstetrics, University of Maryland, and Dr. T. Campbell Goodwin, Chief of the Division of Pediatrics, Baltimore City Hospital. The courses for the southern district will be presented by Dr. William F. Mengert, Professor of Obstetrics, Iowa University School of Medicine, and Dr. Lee Palmer, prominent Louisville pediatrician. Obstetrics will occupy the first three days of the series and pediatrics the last two.

Each center will set aside one day each week for the courses. Below will be found the opening date for the courses at each center and the day of the week on which the courses will be presented. For the northern district:

Martinsburg, July 18, Monday; Keyser, July 19, Tuesday; New Martinsville, July 20, Wednesday; Weston, July 21, Thursday; Fairmont, July 22, Friday.

For the southern district, the schedule is:

Fayette county, July 18, Monday; Logan, July 19, Tuesday; Welch, July 20, Wednesday; Beckley, July 21, Thursday; Ronceverte, July 22, Friday.

The postgraduate courses this year are being sponsored and conducted by the State Association. No fee will be charged for enrollment and it is hoped that the attendance for the courses will be much heavier than in previous years. The two circuits have been worked out so that the lecturers will arrive at each point by early afternoon the day they are to lecture, and will be available throughout the afternoon and evening for consultations, clinical demonstrations, conferences and talks before lay groups.

WE LOSE A LEADER

On Memorial Day the Association lost one of its great leaders and West Virginia lost one of her outstanding citizens with the death of Dr. W. S. Fulton of Wheeling. Both as a surgeon and as a champion of individualism in medical practice, he has left an imprint on the pattern of scientific and economic medicine in West Virginia that will live for many years to come.

Possessor of a magnetic personality and gifted with rare surgical talent and judgment, Dr. Fulton was for many years one of West Virginia's leading surgeons. About fifteen years ago he founded the Wheeling Clinic, which he headed until his death. Later still he began to devote his talents to the cause of organized medicine and soon came to be recognized as an able representative of his profession before lay groups. In 1937 he served as the Association's president. His administration was characterized by aggressive leadership. Although no effort was made by Dr. Fulton to secure new members, the Association membership reached its highest peak during his term of office.

We offer this humble tribute to a man whose life was rich and full, whose accomplishments were varied, whose interests knew no bounds, whose good deeds fell as simply as rain on parched grass, and whose loyalty was his most outstanding trait. To his family, his associates and his friends we extend our deepest sympathy. We join with them in gratitude for his long and useful life, and in sorrow for his passing.

TWENTY-FIVE YEARS AGO

(Taken from the July Journal of 1913)

A membership report presented at the annual meeting in 1913 to the House of Delegates read as follows:

"Our membership for 1912 is 843, divided among component societies as follows:

Barbour-Randolph-Tucker, 60; Boone, 9; Braxton, 8; Brooke, 8; Cabell 50; Doddridge 5; Eastern Panhandle, 35; Fayette, 47; Grant-Hampshire-Hardy-Mineral, 30; Greenbrier Valley, 26; Harrison, 57; Hancock, 6; Kanawha and Ohio Valley, 45; Marion, 44; Mercer, 39; Marshall, 22; McDowell, 35; Mingo, 14; Monongalia, 21; Nicholas-Webster, 17; Ohio, 69; Pleasants, 4; Preston, 23; Raleigh, 19; Ritchie, 20; Summers, 10; Taylor, 14; Tyler, 8; Upshur, 13.

We received 80 new members; lost by removal 23; non-payment of dues, 35; deaths, 5.

During the year Pendleton dropped out; Lewis-Upshur divided so that the number of component societies remains the same. Some of these societies can not be said to have more than a technical existence."

* * * *

Quoting from Secretary A. P. Butt's report at this meeting:

"Allow me again to call your attention to the fact that there are physicians holding state offices who do not belong to any medical organization. Let us keep up an agitation against this abuse until it is done away with. Already our efforts have borne fruit; some of the wayward ones have seen the handwriting on the wall and have hastened to come in. . . ."

"Last year the number of delegates was considerably over 50 per cent of the total number of members present. I therefore recommend that the number of delegates be reduced by an amendment

to the by-laws. In my estimation the amendment should be so framed that the county secretary be the first delegate."

* * * *

The following officers were elected at the annual meeting for 1913 (held in Charleston on May 21, 22 and 23.)

President, Richard E. Venning, Charles Town; first vice president, Dr. C. W. Scott, Bluefield; second vice president, Dr. F. B. Murphy, Philippi; third vice president, Dr. James E. Cooper, Cameron; secretary, Dr. A. P. Butt, Davis; treasurer, H. G. Nicholson, Charleston.

Councillors: First district, Dr. H. R. Johnson, Fairmont; second district, Dr. R. H. Edmundson, Morgantown; third district, Dr. P. A. Haley for one year, B. B. Wheeling for two years; fourth district, Dr. J. E. Rader, Huntington; delegate to A.M.A., Dr. J. L. Dickey, Wheeling.

* * * *

EDITORIAL

The hot weather is upon us, and in order that life may be made as comfortable and safe as possible it should be the aim of all to avoid the strenuous and the exciting as much as possible. . . . All these things are out of season and likely to make business for the doctor, the minister and the undertaker. To live in quiet at home, to work as little as the demands of the family will allow, to take a siesta each day when possible; in short to loaf and rest body and soul to the fullest extent circumstances will permit, these are the things that make for health of body and mind. A quiet corner on the shady porch or on the lawn as the evening shades are settling over the earth is preferable to a bridge party, a dance, lawn tennis, or even the more quiet golf game. . . . S. L. J.

"Lying in bed month after month may be good for diseased tissues; indeed it is a most important part of the cure for many ills, but it is not always good for people. Idleness, even therapeutic idleness, commanded and taught by the doctor, while it may cure physical disease, may yet bring about mental and even moral deterioration. A workless man is in danger of becoming a worthless man. When we are treating people with chronic illness some suitable occupation may be a physical advantage. It is a moral necessity. . . . A patient, a book and a teacher can make a start. Study can be along the line of a person's vocation or can lead to a vocation, and that is perhaps the most useful."—*David A. Stewart, M.D.*

Obituaries

DR. WILLIAM S. FULTON

Dr. William Stuart Fulton, immediate past president of the West Virginia State Medical Association and one of West Virginia's most outstanding surgeons, died at the Wheeling Clinic on Memorial Day, May 30, following a three day illness. He was 65 years of age. Dr. Fulton suffered a heart attack on Friday, May 27, in the operating room of the Ohio Valley General Hospital. After resting at the hospital a short time, he made his way to the Clinic building and was hospitalized there. Although in considerable pain during his illness, he was fully conscious until his death.

Dr. Fulton was born near St. Clairsville, Ohio, on February 3, 1873. Early in life he accompanied his uncle, Reverend J. M. Fulton, to Henderson, North Carolina, where he attended Hendersonville Institute. Later he entered Ohio State University at Columbus and was graduated from the medical school of the university in 1899. Following his interneship at New York Polyclinic Hospital, Dr. Fulton located in Wheeling and was associated with the late Dr. R. O. McMasters. Later he established his own office and, in 1924, organized and headed the Wheeling Clinic.

At the time of his death, Dr. Fulton was chairman of the Council of the West Virginia State Medical Association, a member of the Board of Governors of the American College of Surgeons and a member of the Advisory Board to the West Virginia Department of Public Assistance, and a former member of the W. Va. Public Health Council.

Dr. Fulton served as a captain in the medical corps during the World War. He was a director of the Wheeling Dollar Savings and Trust Company and of the Conservative Life Insurance Company. He was also a member of the Explorers' Club of New York.

While Dr. Fulton was noted chiefly as an outstanding man in the field of medicine and surgery, he had many varied interests. He was a world traveler and big game hunter. His trophy room at his home, Echo Point, in Wheeling attracted men and women in all walks of life. Dr. Fulton's hobby was motion pictures and he had film records of his travels and hunting expeditions. As a philanthropist, his charities were numerous.

During his term as Association president last year, the Association's membership reached its high-

est peak. Attendance at the Clarksburg convention, over which Dr. Fulton presided, was the largest in the Association's history. Dr. Fulton played a prominent part in setting up the present system of medical service to the indigent. His leadership consolidated the activities of Association members in the fight against socialized and state medicine.

Surviving Dr. Fulton is his wife, Martha McElhenney Clarke Fulton, one daughter, Mrs. Thomas Moffat Bloch, two grandchildren and four sisters. Funeral services were conducted from the Vance Memorial Church, Wheeling, on June first with interment in Greenwood cemetery.

DR. CHARLES M. TRUSCHEL

Dr. Charles Menger Truschel, prominent Ohio county physician, died at the Wheeling Hospital on May 22 at the age of 58 years. He had been in failing health for the past two months with a heart condition.

Dr. Truschel was born at Wheeling and received his early education in Linsly Institute and the Cathedral high school. He later studied at Fordham University and received his medical degree from the University of Pennsylvania in 1904. After two years interneship, he received his West Virginia license and entered the practice at Wheeling.

Dr. Truschel was a member of the Ohio County Medical Society and the West Virginia State Medical Association. He served as a medical officer during the World War and was in charge of hospitals at Camp Oglethorpe and Camp Gordon.

Dr. Truschel never married. He is survived by his mother, two sisters and one brother.

DR. B. F. HARDEN

Dr. Benjamin F. Harden, prominent Brooke county physician, died at his home in Wellsburg on June 3 at the age of 81 years. At the time of his retirement several months ago, Dr. Harden was one of the oldest active practitioners in West Virginia.

Dr. Harden was born in 1857 and received his medical education at Jefferson Medical College, Philadelphia, graduating in 1881. He engaged in private practice in Brooke county for sixty years. His particular interest was obstetrics and gynecology.

Dr. Harden was a member of both the Ohio and Brooke county medical societies, an honorary member of the West Virginia State Medical Association and a Fellow of the American Medical Association. He maintained an active interest in organized medicine and rarely missed the Association meetings.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

HAZARDS IN WEST VIRGINIA

In West Virginia approximately a quarter of a million persons are employed in the mining and manufacturing industries. Within this group we have persons exposed to almost every known industrial health hazard. Grouped broadly these hazards are as follows:

Abnormalities of Temperature and Humidity: 1. extreme dry heat; 2. heat and humidity; 3. sudden variations in temperature.

Dampness. Defective Illumination. Dust: 1. organic dust; 2. inorganic.

Infections. Radiant energy: 1. x-rays, radium and other radioactive substances; 2. ultraviolet and infrared rays. Repeated motion, pressure, shock, etc. Poisons: Lead, carbon monoxide, etc.

One of the most complete and authoritative discussions of these health hazards can be found in a bulletin published by the United States Department of Labor "Occupational Hazards and Diagnostic Signs." This bulletin can be obtained at no cost by writing to the United States Department of Labor or to the Bureau of Industrial Hygiene of the State Health Department. Section I of this publication is an "Alphabetical List of Hazardous Occupations" and opposite each occupation is a key to the dangerous condition or substance to which the worker is exposed. With this bulletin at hand it is not necessary for the physician to know much of the details of industrial processes or to have to trust to the knowledge of the worker who is often woefully uninformed as to the materials with which he works. Section II of the bulletin is a "List of Hazards, Symptoms, Occupations Exposed and Methods of Prevention." Under each exposure or group of exposures is a general description of the hazards and methods of protecting the workmen, a list of symptoms, conditions or diseases to be looked for, and a list of occupations which offer such exposures. Section III is a discussion of occupational dermatoses with a list of occupations and the skin irritants encountered in each.

Quoting from this bulletin: "The occupation is now recognized as of the very first importance as a factor in the causation of disability and even of

death. We see this reflected in the frequent revisions of compensation laws to include an increasing number of occupational diseases. Dr. Edsall has shown that in the clinic he conducted at the Massachusetts General Hospital many of the conditions for which treatment was sought by men of working ages were the effects of occupation. Other industrial clinics are reporting similar results. With their attention directed to occupation as a possible factor, industrial physicians are able to diagnose a great many obscure cases which previously had puzzled even the most competent clinicians. In this way they discover a great many more cases of disease of occupational origin than had before been thought possible. Thus, in 1917, about 150 cases of lead poisoning were discovered at the Massachusetts General Hospital, which are more than were recorded by this clinic during the five-year period prior to the adoption of the more intensive methods of study. It is generally recognized that patients come to physicians with pains and complaints of an indefinite character, and it is only when consideration is given to the occupation and its possible effects that many of these cases are cleared up.

"The medical examiner should therefore be very careful to see if any of the usual diagnostic signs of poisoning, dust, heat, or other hazards which are known to be inherent in occupations are in evidence among their patients, where no other explanation of the case is readily available.

"Medical examiners should remember that it is often necessary to keep in mind not only the present occupation but the former one as well. Persons suffering from certain ailments may no longer be engaged in the industry which was responsible for their condition. But careful inquiry into their occupational history will sometimes result in the recording of an occupation the effects of which are clearly those from which the patient is suffering."

APPOINTMENTS

Dr. C. W. Waddell, president, has appointed Dr. Charles O. Henry of Fairmont to the chairmanship of the Committee on Necrology. Dr. Walter E. Vest, chairman for many years of this committee has submitted his resignation.

Dr. Waddell, in accordance with Section 5, Chapter VII, of the By-Laws, has also appointed Dr. George R. Miller of Fairview, as councillor-at-large to fill the vacancy created by the death of Dr. W. S. Fulton, until the House of Delegates elects Dr. Fulton's successor.

County Society News

CABELL COUNTY

The annual jamboree of the Cabell County Medical Society and the Cabell County Bar Association was held at the Guyan Country Club, Huntington, on the afternoon and evening of June 16 with almost a full attendance from both organizations. The afternoon session was featured by a golf tournament between the medical and legal professions.

Additional sports were provided during the afternoon for those who did not participate in the golf tournament. Dinner was served at the Country Club at 6:30 o'clock, followed by entertainment and other competitive sports. In charge of the arrangements for the medical society were Dr. W. Byrd Hunter, Dr. F. C. Hodges and Dr. Walter E. Vest.

BOYD F. BROWN, *Secretary*.

FAYETTE COUNTY

The Fayette County Medical Society held its regular monthly meeting at the Hotel Hill, Oak Hill, on June 7, at eight o'clock p. m.

President A. E. Bays of Longacre called the meeting to order and introduced the speaker, Dr. George E. Gwinn, Beckley. Dr. Gwinn's subject was "Collapse Therapy in Pulmonary Tuberculosis." The presentation was illustrated with x-ray studies.

Dr. L. A. Dickerson, Fayette county health officer, reviewed the accomplishments of the county health department for the past several months.

During the business session the following delegates and alternates to the State Meeting were elected:

Delegates: Dr. R. H. Jones, Montgomery; Dr. N. L. Cardey, Winona.

Alternates: Dr. R. S. Peck, Cannelton; Dr. W. P. Bittinger, Summerlee.

The secretary of the society is automatically a delegate by virtue of his office.

New members admitted to the society were: Doctors Charles H. Engelfried of Montgomery; W. A. Derrick, Montgomery; M. W. McGehee, Montgomery; E. E. Jones, Mount Hope and James P. Leary, McKendree.

GILBERT A. DANIEL, *Secretary*.

KANAWHA COUNTY

The regular June meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, at eight p. m. on the fourteenth. Dr. B. H. Swint, president, presided.

Dr. Arthur Shipley, Professor of Surgery at the University of Maryland, was the essayist for the evening. His subject was "Surgery of the Heart." This topic was received with great interest and evoked considerable discussion among the listeners.

The second half of the meeting was devoted to medical economics. Preliminary suggestions of the American Medical Association for the survey of medical care were considered. Instructions to the delegates for the White Sulphur Springs meetings were given. Following a membership report by the secretary adjournment was called.

A. SPATES BRADY, JR., *Secretary.*

LOGAN COUNTY

The Logan County Medical Society convened at the Aracoma Hotel, Logan, at eight p. m. on June 8. Dr. Dana T. Moore of Stirrat, president, called the meeting to order. A large number of the members were in attendance.

The sound film "The Diagnosis and Treatment of Syphilis" was shown. This film was prepared by the American Medical Association in conjunction with the United States Public Health Service.

Dr. C. N. Scott of the Division of Venereal Diseases of the State Health Department addressed the group. His subject was "The Venereal Situation and Problems in Logan County." Both picture and scientific presentation were very instructive.

The Logan County Medical Society went on record as approving the plan of the State Health Department for handling venereal work.

Dr. James A. Stumbo of Logan was elected to membership in the society.

J. LESTER PATTERSON, *Secretary.*

MERCER COUNTY

The regular monthly meeting of the Mercer County Medical Society was held in the Municipal Building, Bluefield, on the evening of May 19. During the business session Dr. R. O. Rogers reported for his Public Assistance Committee on the work in Mercer county; Dr. Lawrence Pace, Princeton, was elected to membership, and a report was made on the proposed osteopathic legislation pending in Congress.

The scientific program was contributed by members of the society. Dr. O. S. Hare presented a paper on "Postpartum Care"; Dr. R. O. Rogers and Dr. J. R. Shanklin discussed "Cardiac Pain," with case reports and lantern slides, and Dr. H. G. Steele presented three obstetrical case reports, emphasizing obesity and low kidney reserve.

O. G. KING, *Secretary.*

MONONGALIA COUNTY

The regular monthly meeting of the Monongalia County Medical Society was held in the Marine Room of the Hotel Morgan, Morgantown, on the evening of June 7 with a good attendance. Dinner was served at six o'clock, following which the scientific program was presented.

The guest speaker of the evening was Dr. John C. Kerr, Wheeling, who gave a very interesting paper on "Common Skin Diseases of Interest to the General Practitioner."

G. R. MAXWELL, *Secretary.*

PARKERSBURG ACADEMY

A special meeting of the Academy of Medicine of Parkersburg was held on the evening of June 3 and was devoted to business matters. The Academy being allowed one additional delegate to the State Meeting at White Sulphur Springs, Dr. O. D. Barker was elected as the additional representative with Dr. J. M. Depue, Spencer, as alternate.

Dr. Athey R. Lutz, formerly of Huntington, was admitted to membership by transfer.

This was the last spring meeting of the society and activities were suspended until fall.

J. L. WADE, *Secretary.*

POTOMAC VALLEY

The last regular meeting of the Potomac Valley Medical Society was held at the Tri Town Hotel in Piedmont, on May 25 with Dr. V. L. Dyer, president, presiding. The guest speaker of the day was Dr. Emmett Jones, Jr., of Cumberland, Maryland, who gave an interesting presentation on "Bronchoscopy," with a display of instruments.

Doctors present for the meeting were Drs. W. A. Flick, Paul R. Wilson, V. L. Dyer, P. E. Berry, Jr., R. W. Love, Glen Moomau, W. F. McFarland, O. V. Brooks, W G. Drinkwater, Raymond Reeves, Norman Reeves, M. F. Wright, Dr. Freedman and the secretary.

E. A. COURRIER, *Secretary.*

Convention Program

Official Call

To the Officers and Members of the West Virginia
State Medical Association

The seventy-first annual session of the West Virginia State Medical Association will be held in White Sulphur Springs West Virginia from Monday, July the eleventh to Wednesday, July thirteenth, Nineteen hundred and thirty-eight

The House of Delegates will convene on Monday evening, July the eleventh and again on Tuesday evening, July the twelfth

The Council will meet on Monday morning, July the eleventh, at 10:00 oclock

All meetings of special sections will be held on Monday morning and afternoon, July the eleventh

The Scientific Assembly of the Association will open with the General Meeting on Tuesday morning, July the twelfth at 10:00 A. M.

Attest
Joe W. Sadage
Executive Secretary

C. W. Waddell
President

WEST VIRGINIA INDUSTRIAL PHYSICIANS AND SURGEONS ASSOCIATION

Room 909 Greenbrier Hotel
Sunday Evening, July 10, 1938
8:30 O'clock

"Industrial Medicine and Toxicology."

Dr. G. H. Gehrman, Medical Director, E. I. duPont de Nemours Company, Wilmington, Delaware.

Round Table Discussion.

SECTION ON PEDIATRICS

Room D, Greenbrier Hotel
Monday Morning, July 11
9:30 O'clock

Chairman—Dr. Claude L. Holland, Fairmont.
Secretary—Dr. Theresa O. Snaith, Weston.

"Typhoid and Paratyphoid Fever in Children."

Dr. Marcus E. Ferrell, Clarksburg

"A short general discussion of the subject with emphasis on diagnosis. The variation in the pathological changes in the disease between children and adults briefly described. The importance of the recognition of paratyphoid fever stressed."

Discussion:

Dr. Karl Johnson, Morgantown.

"The Pediatrician and the Surgeon."

Dr. J. T. Thornton, Wheeling.

"A general discussion of the relationship of the pediatrician to the surgeon. The pediatrician should be responsible for the diagnosis, preoperative and postoperative care. Some details of management of operative cases."

Discussion:

Dr. J. L. Blanton, Fairmont.

"The Art of Diagnosis."

Dr. J. C. Gittings, Philadelphia, Pa.

"The hospital physician has at his command various diagnostic laboratory procedures. The practitioner oft-times has to do with a minimum of such aids. By illustrative cases, briefly expounded, the pitfalls and successes in diagnosis will be illustrated. Also certain basic rules of procedure will be formulated."

Discussion:

Dr. A. A. Shawkey, Charleston.

"Problems of the Newborn Nursery."

Dr. George M. Lyon, Huntington.

"Many of the hazards of the neonatal period could be reduced by better provision for newborn nursery service in our small general hospitals. The problems most commonly encountered are discussed and a consideration of their practical solution is presented."

Discussion:

Dr. Russel Bond, Wheeling.

SECTION ON INTERNAL MEDICINE

Ballroom, Greenbrier Hotel
Monday Morning, July 11, 1938
9:30 O'clock

Chairman—Dr. H. R. Sauder, Wheeling.

Secretary—Dr. F. R. Whittlesey, Morgantown.

"Syphilis in Mining Communities."

Dr. W. P. Bittinger, Summerlee.

"A report of syphilis among miners and their families with the findings and the results of treatment based on seven years observation."

Discussion:

Dr. C. N. Scott, Charleston.
Dr. O. D. Barker, Parkersburg.

"Recent Advances in the Treatment of Pneumonia."

Dr. D. A. MacGregor, Wheeling.

"Specific measures of value include: 1. Roentgen therapy. 2. Chemotherapy. 3. Serum therapy. The outstanding success of serum therapy coupled with the appalling incidence of pneumonia generally have caused certain states to establish laboratories for free typing and furnish free serum for the indigent. What should West Virginia do?"

Discussion:

Dr. A. R. K. Matthews, Parkersburg.
Dr. George F. Evans, Clarksburg.

"Diagnosis and Treatment of Peripheral Vascular Disease."

Dr. Horace M. Korns, Iowa City, Iowa.

"This paper deals with the differential diagnosis and treatment of arteriosclerosis obliterans, thromboangiitis obliterans, Raynaud's disease, and erythromelalgia. Special attention is given to the modern development of mechanical methods designed to promote the circulation of the blood in the extremities."

Discussion:

Dr. James L. Wade, Parkersburg.
Dr. W. V. Wilkerson, Highcoal.

"Hepatic Cirrhosis With Bruit (Cruveilhier-Baumgarten Syndrome)

Dr. Walter E. Vest, Huntington.

"The mechanism of the production of the bruit is discussed. The literature is reviewed and an interesting case is reported."

Discussion:

Dr. Albert H. Hoge, Bluefield.
Dr. F. C. Hodges, Huntington.

SECTION ON SURGERY

Ballroom, Greenbrier Hotel

Monday Afternoon, July 11, 1938
2:00 O'clock

Chairman—Dr. William R. Goff, Parkersburg.

Secretary—Dr. Justus C. Pickett, Morgantown.

"Head Injuries."

Dr. W. P. Sammons, Wheeling.

"Increased incidence and 'mechanical age.' Evaluation of signs and symptoms, in a rapidly changing clinical picture. Pathology. Complications. Sequelae. Prognosis—mortality decreasing. Treatment—conservatism emphasized. Increased intracranial pressure—lumbar puncture pro and con; dehydration—magnesium sulphate, glucose, sucrose—pro and con; infrequency of decompression."

Discussion:

Dr. Robert J. Reed, Jr., Wheeling.

Dr. J. R. Caldwell, Wheeling.

"Recent Developments in the Surgical Treatment of Lesions of the Biliary Tract."

Dr. Waltman Walters, Rochester, Minn.

"Symptoms resulting from lesions of the biliary tract are variable among different individuals and the degree of pathologic change present is out of proportion, in many instances, to the symptoms which are produced; hence, the difficulty of determining the stage of inflammation or the degree of obstruction resulting from gallstones. Reference will be made to the possible errors in cholecystographic examination and their influence on the determination of the type of lesion present."

Discussion:

Dr. Thomas Bess, Keyser.

Dr. R. J. Wilkinson, Huntington.

"Treatment of Fractures of the Spine, Operative and Non-Operative."

Dr. Howard A. Swart, Charleston.

"Results of non-operative treatment in 70 cases of compression fractures of all types, also, results in six cases in which bone graft operations were performed will be given. (Illustrated by moving pictures.)"

Discussion:

Dr. E. Bennette Henson, Charleston.

Dr. Francis A. Scott, Huntington.

"Foregut, Triumphant Entry to Conflict."

Dr. N. B. Hendrix, Martinsburg.

"Embryologic developmental discussion of the entoderm: significance of congenital deficiencies therein; liver and pancreas relationship; portal circulation and practical surgical application."

Discussion:

Dr. Dorsey Brannon, Morgantown.

Dr. David B. Ealy, Moundsville.

EYE, EAR, NOSE & THROAT SECTION

Room D, Greenbrier Hotel

Monday Afternoon, July 11, 1938

2:00 O'clock

Chairman—Dr. George Traugh, Fairmont.

Secretary—Dr. Welch England, Parkersburg.

"Treatment and Management of Nasal Sinus Disease."

Dr. William F. Beckner, Huntington.

"We are dealing with a sinus and allergic conscious laity today, and if we are to keep them from listening to and patronizing the charlatan and radio advertiser, we must give our patients more careful thought and study than ever before and remember that we must treat the patient as well as the disease."

"Challenge or Change."

Dr. F. T. Scanlon, Morgantown.

"Why the increasing interest in socialized medical practice? Is there justification for changing the basic principles on which the practice of medicine is founded? Is there any other profession that surpasses that of medicine in its advance in scientific and humanitarian attainment?"

"Carcinoma of the Larynx."

Dr. Lewis Henry Clerf, Philadelphia, Pa.

"Carcinoma of the larynx commonly occurs on a vocal cord and causes hoarseness, an unmistakable symptom of laryngeal disease. Prompt examination of the larynx and investigation of the lesion found should result in diagnosis early in the disease. The subject will be considered from the standpoint of diagnosis and the result secured if treatment is instituted early in the disease. The various plans of treatment will be discussed."

"Local Anesthetic Crises in Rhino-Laryngology."

Dr. Sobisca S. Hall, Clarksburg.

"It is important that the pharmacodynamics, toxicology and the physiologic antidotes be always familiar to the operator. The important early symptoms of toxicity are stressed and precautionary measures are outlined. The experiences in about 2,500 local anesthetics are resumed which show a toxic reaction in the ratio of 1:1250. Two toxic reactions are exhaustively outlined, both of whom fortunately recovered."

WEST VIRGINIA HEART ASSOCIATION

Room A, Greenbrier Hotel

Monday Afternoon, July 11, 1938

2:00 O'clock

President—Dr. W. C. Stewart, Charleston.

Secretary—Dr. R. J. Condry, Elkins.

"The Incidence of Heart Disease in Private Practice."

Dr. R. J. Condry, Elkins.

"The Effect of Pulmonary Emphysema on the Heart."

Dr. Horace M. Korns, Iowa City, Iowa.

"An examination of the experimental and clinical evidence for and against the theory that pulmonary emphysema leads to cardiac hypertrophy, together with a discussion of the various factors which must be considered in the investigation of this elusive problem."

"The Fourth Lead in the Electrocardiogram."

(President's Annual Address)

Dr. William C. Stewart, Charleston.

NOTE—Following the regular scientific program, there will be a heart film prepared by the American Heart Association on "Cardiovascular Disease."

GENERAL CONVENTION PROGRAM

Ballroom, Greenbrier Hotel

Tuesday Morning, July 12, 1938

10:00 O'clock

CALL TO ORDER

Dr. Charles W. Waddell, President, Fairmont.

INVOCATION—Reverend Ben Roller, White Sulphur Springs.

ADDRESS OF WELCOME—Dr. H. D. Gunning, Ronceverte, President, Greenbrier Valley Medical Society.

RESPONSE—Dr. B. H. Swint, Charleston.

SCIENTIFIC PROGRAM

"The Nature and Manifestations of Congestive Heart Failure."

Dr. Horace M. Korns, Professor of Medicine, State University of Iowa.

"A brief historical survey of the growth of our knowledge of the pathologic physiology of congestive heart failure is followed by a report of cases selected to illustrate the protean clinical manifestations."

Discussion:

Dr. D. C. Ashton, Beckley.

Dr. R. J. Condry, Elkins.

"Hyperfunctioning Lesions of the Ductless Glands."

Dr. Waltman Walters, Mayo Clinic, Rochester, Minnesota.

"Although reference will be made to the hyperfunctioning adenomas of the parathyroid glands and the masculinizing tumors of the ovaries, the paper will be concerned principally with discussion of the hyperfunctioning tumors of the adrenal cortex, which produce heterosexual changes, and tumors of the medullary portion of the adrenal glands, which produce paroxysmal hypertension."

Discussion:

Dr. Russell B. Bailey, Wheeling.

Dr. Robert King Buford, Charleston.

Tuesday Afternoon, July 12, 1938

Ballroom, Greenbrier Hotel

2:00 O'clock

"Pulmonary Suppuration."

Dr. Lewis Henry Clerf, Professor of Bronchoscopy, Jefferson Medical College, Philadelphia, Pa.

"The surgical treatment of pulmonary suppuration, although very satisfactory, is not the ultimate solution of this problem. The subject will be presented from the standpoint of prevention, a responsibility that rests with the physician who attends the patient before the pulmonary changes with suppuration develop."

Discussion:

Dr. David B. Salkin, Hopemont.

Dr. S. S. Hall, Clarksburg.

ORATION ON SURGERY

"Injuries of the Knee Joint."

Dr. C. B. Pride, Morgantown.

"Anatomy of the knee—etiology, symptoms and diagnosis of internal derangements of the knee joint—summary of twenty-five operative cases of torn semilunar cartilages and other traumatic conditions of the knee.—Lantern slides."

"Non-Specific Lung Infections."

Dr. J. C. Gittings, Professor of Pediatrics, University of Pennsylvania Medical School, Philadelphia, Pa.

"To the patient and his family, prognosis is of the utmost importance. In chronic diseases, the end result often is never known to the physician primarily in charge. An attempt has been made to illustrate various types of lung infections and to trace the course and ultimate outcome, with a view to treatment as well as prognosis."

Discussion:

Dr. Russell Bond, Wheeling.

Dr. Andrew E. Amick, Charleston.

Tuesday Evening, July 12, 1938
Ballroom, Greenbrier Hotel
8:00 O'clock

PRESIDENT'S ANNUAL ADDRESS

"The Doctor as a Citizen."

Dr. C. W. Waddell, Fairmont, President, West Virginia State Medical Association.

"Reference to certain extra-professional angles of contact with the public. The broad educational requirements implied by the present high standards of licensure impose on the medical man obligations not only to assume leadership in matters purely professional but active participation in all activities affecting good citizenship."

NOTE—The House of Delegates will convene in Room 909 immediately following the Presidential Address for the purpose of electing officers for the coming year and disposing of pending business.

Wednesday Morning, July 13, 1938
Ballroom, Greenbrier Hotel
9:30 O'clock

"Nephroptosis."

Dr. Gordon F. McKim, Professor of Urological Surgery, University of Cincinnati.

"Nephroptosis often overlooked during routine examination—necessity of modern urological examination to eliminate this condition in obscure abdominal pathology. Discussion of alterations in the normal anatomic relationship produced by abnormal mobility. Our experience has been that surgery is the only hope for cure in selected cases. Movie demonstration of radical operation. Postoperative results in 400 cases."

Discussion:

Dr. C. J. Reynolds, Bluefield.
Dr. B. S. Brake, Clarksburg.

ORATION ON MEDICINE

"Human Blood as a Therapeutic Agent."

Dr. C. B. Chapman, Welch.

"A review of the historical development, recent advances, and the present problems of blood transfusion; status in West Virginia. Result of study of three hundred and fifty-two transfusions. Data on use of immune human blood or its constituents."

"The Advantages Offered by an Organized Anesthetic Service."

Dr. Henry S. Ruth, Professor of Anesthesia, Hahnemann Medical College, Philadelphia, Pa.

"There are more advantages accruing from an efficiently trained and well organized anesthetic service than merely having available a better quality of anesthesia in the operating rooms. Preoperatively it will offer (1) valuable advice on the selection of the anesthetic agent and method, (2) individualized preanesthetic sedation. Among the activities now commonly assumed by such an anesthetic department are (1) gas therapy (2) resuscitation irresponsive of the etiology of the cause for its application and, (3) therapeutic nerve blocking."

Discussion:

Dr. Eldon B. Tucker, Morgantown.
Dr. Boyd F. Brown, Huntington.

Wednesday Afternoon, July 13, 1938
Ballroom, Greenbrier Hotel
2:00 O'clock

"Errors in Diagnosis or Treatment for Low Back Pain."

Dr. Edward L. Compere, Professor of Orthopedic Surgery, Chicago University School of Medicine.

"Little emphasis has been placed upon the relatively common fact that the etiology of visceral pain sometimes may be found in the spine or spinal cord. On the other hand while the wise orthopedic surgeon hesitates to undertake treatment to relieve pain in the back without first carefully examining the patient for evidence of primary neurological disease, pathology of the female pelvis, or of the male urogenital organs, few indeed are alert to the equally important fact that disease of the chest or of the gastrointestinal organs may produce, as the primary complaint, pain in the back."

Discussion:

Dr. Justus C. Pickett, Morgantown.
Dr. Athey R. Lutz, Parkersburg.

"Pyelitis in Pregnancy."

Dr. Nicholas J. Eastman, Professor of Obstetrics, Johns Hopkins University, Baltimore, Md.

"After reviewing briefly the etiology of pyelitis in pregnancy, treatment is discussed, particularly the relative value of alkalis, ammonium mandelate and sulfanilamide. Indications for interruption of pregnancy are outlined and importance of postpartum follow-up emphasized."

Discussion:

Dr. W. E. Hoffman, Charleston.
Dr. C. S. Bickel, Wheeling.

"The Surgical Treatment of Peptic Ulcer."

Dr. Irvin Abell, Louisville, President, American Medical Association.

"Peptic ulcer is regarded as primarily medical, becoming surgical only with the advent of complications and long chronicity. The complications are discussed, a definition of chronicity warranting operation is made, and the various procedures which, in our experience, have proven beneficial are recounted."

ANNUAL CONVENTION BANQUET

Main Dining Room, Greenbrier Hotel
Wednesday Evening, July 13, 1938
7:30 O'clock

Toastmaster—Dr. D. A. MacGregor, Wheeling.

Speaker—Dr. Warren Roberts, Del Rio, Texas.

CONVENTION DANCE

Ballroom, Greenbrier Hotel
10 p. m. Until Closing.

WEST VIRGINIA OBSTETRICAL AND GYNECOLOGICAL SOCIETY

Thursday, July 14, 1938

9:00 A. M.

Dr. W. W. Point, Charleston, President.

Dr. Edwin J. Humphrey, Huntington, Secretary.

Call to Order—Dr. W. W. Point.

Invocation—Rev. R. Moorman Parker, Lewisburg Methodist Church, Lewisburg.

President's Address—

"The Conduct of Normal Labor."
Dr. W. W. Point, Charleston.

"Ectopic Pregnancy."
Dr. F. A. Clark, Charleston.

"Low Cervical Cesarean Section."
Dr. W. N. Rowley, Huntington.

"Hydatiform Mole."
Dr. G. V. Morgan, Fairmont.

"Pregnancy and Labor in the Bicormate Uterus."
Dr. Nicholas J. Eastman, Baltimore, Maryland.

12:00 Noon

Dinner.

AFTERNOON SESSION

1:00 P. M.

Business Session.

2:00 P. M.

Round Table on Indications for Cesarean Section by Dr. Nicholson J. Eastman, Obstetrician-in-Chief, Johns Hopkins Hospital, Baltimore, Maryland.

"Congenital abnormalities of the uterus are sufficiently common to warrant consideration of the complications which they may cause in pregnancy and labor. Several characteristic complications, namely uterine inertia, torsion of the pregnant horn, rupture of the pregnant horn and fetal death are exemplified by case histories and discussed from a diagnostic and therapeutic point of view."

GUESTS OF HONOR

Dr. Irvin Abell, Louisville, President, American Medical Association.

Dr. Lewis Henry Clerf, Professor of Bronchoscopy, Jefferson Medical College, Philadelphia, Pa.

Dr. Edward L. Compere, Professor of Orthopedic Surgery, Chicago University School of Medicine, Chicago, Ill.

Dr. Nicholas J. Eastman, Professor of Obstetrics, Johns Hopkins University, Baltimore, Md.

Dr. E. B. Freeman, Baltimore, Maryland.

Dr. G. H. Gehrman, Medical Director, E. I. du-Pont de Nemours Company, Wilmington, Del.

Dr. John C. Gittings, Professor of Pediatrics, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Dr. Horace M. Korns, Professor of Medicine, Iowa University School of Medicine, Iowa City, Iowa.

Dr. Dean Lewis, Professor of Surgery, Johns Hopkins University, Baltimore, Maryland.

Dr. Gordon F. McKim, Professor of Urological Surgery, University of Cincinnati School of Medicine.

Dr. Henry S. Ruth, Associate Professor of Anesthesia, Hahnemann Medical College, Philadelphia, Pa.

Dr. Waltman Walters, Mayo Clinic, Rochester, Minnesota.

HOUSE OF DELEGATES

Following is the list of duly elected county medical society delegates who have been certified to the office of the Association headquarters. These men, together with the officers, councillors and past presidents, will comprise the House of Delegates.

Barbour-Randolph-Tucker Society — Dr. Guy H. Michael, Belington.

Boone Society—Dr. R. L. Hunter, Madison.

Brooke Society—Dr. Ray C. Otte, Wellsburg.

Cabell Society—Dr. Boyd Brown, Huntington; Dr. O. B. Biern, Huntington; Dr. Chauncey Wright, Huntington; Dr. Raymond Sloan, Huntington; Dr. William Strange, Huntington.

Central West Virginia—Dr. A. B. Bowyer, Buckhannon; Dr. E. H. Hunter, Webster Springs.

Doddridge—Dr. A. Poole, West Union.

Eastern Panhandle—Dr. M. H. Porterfield, Martinsburg; Dr. A. W. Armentrout, Martinsburg.

Fayette Society—Dr. Gilbert Daniel, Alloy; Dr. R. H. Jones, Montgomery; Dr. N. L. Cardey, Winona.

Greenbrier Valley Society—Dr. R. E. Baer, White Sulphur Springs; Dr. A. G. Lanham, Ronceverte.

Hancock Society—Dr. A. A. Yurko, Weirton; Dr. A. C. Sunseri, Weirton.

Harrison Society—Dr. James G. Ralston, Clarksburg; Dr. C. O. Post, Clarksburg; Dr. E. B. Wright, Clarksburg; Dr. F. V. Langfitt, Clarksburg.

Kanawha Society—Dr. A. S. Brady, Jr., Charleston; Dr. B. H. Swint, Charleston; Dr. Russell

Kessel, Charleston; Dr. A. A. Shawkey, Charleston; Dr. T. G. Reed, Charleston; Dr. A. E. Amick, Charleston; Dr. W. A. Thornhill, Jr., Charleston; Dr. P. A. Tuckwiller, Charleston.

Lewis Society—Dr. R. O. Pletcher, Jane Lew; Dr. E. A. Trinkle, Weston.

Logan Society—Dr. J. Lester Patterson, Holden; Dr. D. T. Moore, Stirrat; Dr. E. H. Starcher, Omar.

Marion Society—Dr. A. H. Stevens, Fairmont; Dr. E. P. Smith, Fairmont; Dr. F. E. Flowers, Mannington; Dr. L. D. Norris, Fairmont.

Marshall Society—Dr. J. A. Striebich, Moundsville; Dr. W. C. Boggs, Cameron; Dr. J. C. Peck, Moundsville.

Mason Society—Dr. H. A. Barbee, Pt. Pleasant.

McDowell Society—Dr. F. E. LaPrade, Welch; Dr. E. E. Vermillion, Welch; Dr. R. H. Edwards, Welch.

Mercer Society—Dr. O. G. King, Bluefield; Dr. T. E. Vass, Bluefield; Dr. H. G. Steele, Bluefield.

Mingo Society—Dr. George W. Easley, Williamson.

Monongalia Society—Dr. G .R. Maxwell, Morgantown; Dr. E. F. Heiskell, Morgantown; Dr. F. R. Whittlesey, Morgantown.

Ohio Society—Dr. W. C. D. McCuskey, Wheeling; Dr. Ivan Fawcett, Wheeling; Dr. Earl Phillips, Wheeling; Dr. Glen McCoy, Elm Grove; Dr. S. W. Tretheway, Wheeling.

Potomac Valley Society—Dr. E. A. Courrier, Keyser; Dr. Thomas A. Bess, Keyser.

Parkersburg Academy—Dr. James L. Wade, Parkersburg; Dr. H. M. Campbell, Parkersburg; Dr. T. L. Harris, Parkersburg; Dr. O. D. Barker, Parkersburg.

Preston Society—Dr. R. C. Edson, Hopemont; Dr. E. E. Watson, Albright; Dr. C. Y. Moser, Kingwood.

Raleigh Society—Dr. L. M. Halloran, Beckley; Dr. K. M. Jarrell, Beckley; Dr. Clark Kessel, Beckley.

Summers Society—Dr. D. W. Ritter, Hinton.

Taylor Society—Dr. Harold Noble, Grafton.

Wetzel Society—Dr. E. C. Blum, New Martinsville.

Wyoming Society—Dr. Ward Wylie, Mullens; Dr. Walter Dearing, Mullens.

The duly elected alternates who will serve in the absence of their respective delegates are as follows:

Cabell Society—Dr. Hallock Moore, Huntington; Dr. Frank Hodges, Huntington; Dr. Gilbert Ratcliff, Huntington; Dr. Wes C. Thomas, Huntington.

Central West Virginia—Dr. William Nelson, Richwood.

Eastern Panhandle—Dr. R. E. Clapham, Martinsburg; Dr. R. B. Talbott, Martinsburg.

Fayette Society—Dr. R. S. Peck, Cannelton; Dr. W. P. Bittinger, Summerlee.

Hancock Society—Dr. A. Sunseri, Weirton.

Harrison Society—Dr. I. C. Cole, Clarksburg; Dr. H. H. Esker, Clarksburg; Dr. G. F. Evans, Clarksburg.

Kanawha Society—Dr. C. B. Smith, Charleston; Dr. W. P. Black, Charleston; Dr. H. B. Wise, Charleston; Dr. P. A. Haley, II, Charleston; Dr. Francis Clark, Charleston; Dr. S. L. Bivens, Charleston; Dr. P. H. Revercomb, Charleston.

Lewis Society—Dr. R. M. Fisher, Weston.

Logan Society—Dr. Harold Vanhoose, Mallory; Dr. W. E. Brewer, Logan.

Marion Society—Dr. C. J. Carter, Fairmont; Dr. G. V. Morgan, Fairmont; Dr. D. D. Hamilton, Mannington.

Marshall Society—Dr. J. N. Neidermeyer, McMechen.

McDowell Society—Dr. V. L. Wetherby, Welch; Dr. C. F. Johnston, Welch.

Mercer Society—Dr. Uriah Vermillion, Athens; Dr. J. I. Markell, Princeton.

Monongalia Society—Dr. Brinley John, Morgantown; Dr. J. H. Trotter, Morgantown.

Ohio Society—Dr. E. S. Bippus, Wheeling; Dr. R. C. Bond, Wheeling; Dr. W. A. Quimby, Wheeling; Dr. R. B. Bailey, Wheeling.

Potomac Valley Society—Dr. W. A. Flick, Keyser.

Parkersburg Academy — Dr. Marsh Depue, Spencer; Dr. P. C. Starkey, Ravenswood; Dr. Richard Hamilton, St. Marys.

Preston Society—Dr. B. S. Rankin, Kingwood; Dr. H. C. Miller, Eglon.

Raleigh Society—Dr. B. B. Richmond, Skelton; Dr. R. C. Mitchell, Sophia.

COMMERCIAL EXHIBITORS

Coca Cola, Atlanta, Georgia.

Fulton Brothers Incorporated, Pittsburgh, Pa.

General Electric, Cincinnati, Ohio.

Holland Rantos Company, New York City.

Kelley-Koett Company, Covington, Kentucky.
Kloman Instrument Company, Washington.
Lederle Laboratories, New York City.
Mead Johnson, Evansville, Indiana.
Mellin's Food, Boston.
National Drug Company, Philadelphia.
Philip Morris & Co., New York City.
Powers & Anderson, Richmond.
Westinghouse, New York.
Max Wocher, Cincinnati.

GENERAL INFORMATION

All general scientific sessions will be held in the Ballroom of the Greenbrier Hotel.

There will be a meeting of the Association Council at 2:30 o'clock on Monday afternoon, July 11, and thereafter at the call of the chairman.

The House of Delegates will meet for the purpose of transacting business and hearing reports on Monday evening, July 11, in room 909 of the Greenbrier Hotel.

A second meeting of the House of Delegates will be held in room 909 on Tuesday evening, July 12, immediately following the President's Address, for the purpose of electing officers for 1939 and to transact unfinished business from the previous session.

All members of the Association, their wives and guests are requested to register immediately upon their arrival. The registration desk will be located with the exhibit display in the auditorium.

The annual convention golf tournament is in charge of Dr. R. H. Dunn of South Charleston. Members are required to bring their club handicaps certified by their club professionals. Trophies and awards will be made at the convention banquet.

The convention banquet and dance will be held Wednesday evening, July 13. No extra charge will be made for those registered at the hotel. Tickets will be available at $2.50 each for those not registered at the hotel.

The Dr. Jesse G. M. Bullowa film entitled "The Management of the Pneumonias" will be shown each noon in the small arcade theatre downstairs from 12:00 until 12:45 o'clock.

Special luncheons during the convention will include: Phi Beta Pi, July 12, Room D; Alpha Kappa Kappa, July 12, Room A; Anesthetists group, July 13, Room D; Orthopedic group, July 11; Radiological group, July 12; Obstetrical group, July 14, Room 909.

...PROGRAM...

Fourteenth Annual Meeting

WOMAN'S AUXILIARY WEST VIRGINIA STATE MEDICAL ASSOCIATION

HEADQUARTERS—THE GREENBRIER

WHITE SULPHUR SPRINGS, JULY 11, 12, 13, 1938

MONDAY

2 o'clock

Registration.....Fifty cents

3 o'clock

EXECUTIVE BOARD MEETING

Virginia Room

Presiding.....Mrs. E. H. Starcher

Monday Evening—Open

TUESDAY, JULY 12, 1938

9 o'clock—Greenbrier Hotel, Virginia Room

FORMAL OPENING OF CONVENTION

Presiding.....Mrs. E. H. Starcher

Invocation.....Collect in Unison

Address of Welcome....H. D. Gunning, M. D., President, Greenbrier Valley Medical Society.

Response....Mrs. Edwin Humphrey, Huntington

Introduction of Convention Chairmen—Mrs. V. E. Holcombe, Charleston; Mrs. Philip Johnson, Fairmont.

First Report of Credentials Committee—Mrs. S. S. Hall, Clarksburg.

"In Memoriam"..Mrs. O. D. Barker, Parkersburg

MINUTES OF THIRTEENTH ANNUAL MEETING.

ROLL CALL.

REPORTS AND RECOMMENDATIONS.

Recording Secretary...Mrs. W. C. D. McCuskey
Corresponding Secretary....Mrs. J. L. Patterson
Treasurer.....Mrs. B. B. Nicholson
Auditor.....Read by Recording Secretary

STANDING COMMITTEES (Five Minutes)

Archives.....Mrs. Russel Kessel
Exhibits.....Mrs. G. A. Ratcliffe
Historian.....Mrs. Russel C. Bond
Hygeia.....Mrs. H. P. Evans
Legislation.....Mrs. E. B. Wright
Parliamentarian.....Mrs. C. L. Parks

Press and Publicity.....Mrs. H. E. Beard

Program.....Mrs. H. V. Thomas

Public Relations.....Mrs. H. F. Troutman

Research and Romance.....Mrs. B. S. Preston

Speakers Bureau and Special Projects—Mrs. V. E. Holcombe.

PRESIDENT'S ADDRESS AND REPORT

ANNOUNCEMENTS:

BUDGET COMMITTEE

ELECTIONS COMMITTEE

RESOLUTIONS COMMITTEE

Address—"W. Va. Health Laws"—Miss Dorothea Campbell, Charleston.

TUESDAY AFTERNOON

Terrace Dining Room

Luncheon.....one o'clock

Presiding.....Mrs. E. H. Starcher

Guests—Dr. C. W. Waddell, President, West Virginia State Medical Association; Doctors Ray Kessel, T. M. Barber, H. H. Haynes, Advisory Board; Mr. Joe W. Savage, Executive Secretary, West Virginia State Medical Association; Dr. James R. Bloss, Editor Emeritus, West Virginia Medical Journal.

TUESDAY EVENING—OPEN

WEDNESDAY, JULY 13, 1938

8:30 o'clock

PAST PRESIDENT'S BREAKFAST

Hostesses—Mrs. B. S. Preston, Mrs. R. V. Shanklin, Mrs. J. P. Lilly.

GENERAL MEETING

Virginia Room

Presiding.....Mrs. E. H. Starcher

Invocation.....Prayer in Unison

MINUTES.

Second Report of Committee on Credentials and Registration.....Mrs. S. S. Hall

ROLL CALL OF DELEGATES.

TREASURER'S REPORT.

PRESENTATION OF BUDGET.

Resume of County Presidents' Reports (Fifteen minutes).....Mrs. H. V. Thomas

DISCUSSION.

Roll Call of Counties for Auxiliary Credits.

Report of Nominating Committee:
Mrs. R. V. Shanklin, Chairman.

Election of Officers.

Installation of Officers.....Mrs. R. V. Shanklin

Courtesy Resolutions.

Minutes.

WEDNESDAY AFTERNOON

Casino

Luncheon.....one o'clock

Presiding.....Mrs. E. H. Starcher

Guest Speaker.....Mrs. Luther Bach, President, Woman's Auxiliary to the Southern Medical Association.

Guest Speaker.....Mrs. W. Burrill Odenatt, Regional Program Chairman, Philadelphia, Pa.

Presentation of Mrs. F. S. Harkleroad, President for 1938-1939.

ADJOURNMENT.

POST CONVENTION BOARD MEETING

(*Time and Place to be Announced*)

Presiding.....Mrs. F. S. Harkleroad

WEDNESDAY EVENING, JULY 13, 1938

Annual Convention Dinner and Dance

CONVENTION COMMITTEES

General Chairmen—Mrs. V. E. Holcombe, Mrs. Philip Johnson.

Credentials and Registration.....Mrs. S. S. Hall
Exhibits.....Mrs. G. A. Ratcliffe
Finance.....Mrs. B. B. Nicholson
Hospitality.....Mrs. F. S. Harkleroad
Inter-county.....Mrs. J. L. Patterson
Golf.....Mrs. J. E. Rucker

OFFICERS

President.....Mrs. E. H. Starcher
President-elect.....Mrs. F. S. Harkleroad
First Vice President.....Mrs. G. A. Ratcliffe
Second Vice President.....Mrs. J. E. Rucker
Third Vice President.....Mrs. J. H. Anderson
Recording Secretary...Mrs. W. C. D. McCuskey
Corresponding Secretary....Mrs. J. L. Patterson
Treasurer.....Mrs. Berlin B. Nicholson

CHAIRMEN OF STANDING COMMITTEES

Archives.....Mrs. Russel Kessel
Exhibits.....Mrs. G. A. Ratcliffe
Historian.....Mrs. Russel C. Bond
Hygeia.....Mrs. H. P. Evans
Legislation.....Mrs. E. B. Wright
Parliamentarian.....Mrs. C. L. Parks
Press and Publicity.....Mrs. H. E. Beard
Program—State.....Mrs. H. V. Thomas
Public Relations.....Mrs. H. F. Troutman
Research and Romance.....Mrs. B. S. Preston
Speakers' Bureau, Special Projects—Mrs. V. E. Holcombe.

COUNTY PRESIDENTS 1937-1938

Mrs. W. V. Wilkerson.....Boone County
Mrs. Edwin J. Humphrey.....Cabell County
Mrs. H. F. Troutman.....Fayette County
Mrs. A. J. Kemper.....Harrison County
Mrs. J. E. Rucker.....Kanawha County
Mrs. D. S. Hess.....Logan County
Mrs. Philip Johnson.....Marion County
Mrs. J. I. Markell.....Mercer County
Mrs. E. Vermillion.....McDowell County
Mrs. John Thornton.....Ohio County
Mrs. R. P. Daniel.....Raleigh County
Mrs. O. D. Barker.....Wood County

PAST PRESIDENTS

Mrs. G. A. Rutherford.....Nolan
Mrs. B. S. Preston.....Charleston
Mrs. R. V. Shanklin.....Gary
Mrs. J. P. Lilly.....Charleston
Mrs. Walter C. Swann.....Huntington
Mrs. S. S. Hall.....Clarksburg
Mrs. Howard T. Phillips.....Wheeling
Mrs. Frank V. Langfitt.....Clarksburg
Mrs. M. F. Petersen.....Charleston
Mrs. S. M. Prunty.....Parkersburg
Mrs. A. S. Stevens.....Fairmont

ADVISORY BOARD

Dr. Ray Kessel.....Charleston
Dr. T. M. Barber.....Charleston
Dr. H. H. Haynes.....Clarksburg
Mrs. S. M. Prunty.....Parkersburg
Mrs. A. H. Stevens.....Fairmont

General News

PROPOSED AMENDMENT

Under authority of Section 1 of Article XIV of the Association Constitution relative to amendments, we publish below the proposed amendment to Section 1 of Article V of the Constitution introduced at the Clarskburg meeting last year by Dr. Claude B. Smith, Charleston, and which will be voted upon at the White Sulphur Springs meeting next July. Dr. Smith's resolution follows:

Be it Resolved, That Section 1 of Article V of the Constitution of the West Virginia State Medical Association which now reads: "Section 1, The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component county societies; (2) the councillors; (3) all ex-presidents and (4) ex-officio the president and treasurer of this Association."

Be hereby amended to read as follows:

"Section 1, Article V, The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component county societies; (2) all ex-presidents and (3) ex-officio, the president, the two vice presidents and the treasurer of this Association. The councillors shall attend the meetings of the House of Delegates and may participate in all discussions but shall have no vote."

NEW DOCTORS LICENSED

The next meeting of the Public Health Council of West Virginia will be held at Elkins on July 4, 5 and 6, 1938. Applicants for medical licensure, both by examination and reciprocity, will be examined during the three day session.

New doctors licensed by examination at the spring meeting of the board are as follows:

Dr. C. B. Buffington, Wheeling Clinic, Wheeling; Dr. Joseph R. Cook, Huntington; Dr. J. E. P. Davia, Monongah; Dr. C. H. Engelfried, Laird Memorial Hospital, Montgomery; Dr. Nahum Friedman, Grace Hospital, Welch; Dr. W. P. Kavanagh, Watts Hospital, Durham, North Carolina; Dr. J. R. Kaufman, Longacre; Dr. J. P. Leary, McKendree; Dr. L. R. Leeson, Ravenswood; Dr. M. W. McGehee, Laird Memorial Hospital, Montgomery; Dr. E. H. Main, Philippi; Dr. W. B. Taylor, Jr., Huntington; Dr. G. L.

Vieweg, Jr., 2235 Chapline St., Wheeling; Dr. John W. Walters, 123 16th St., Wheeling; Dr. I. O. Wilson, Highcoal.

Those licensed by reciprocity were:

Dr. L. R. Ayers, Hinton; Dr. A. A. Baldwin, Welch; Dr. Philip Bress, Logan; Dr. E. S. Brewster, Elkins; Dr. Arthur Davidman, Logan; Dr. J. C. Helms, Hedgesville; Dr. Max Koenigsburg, Huntington; Dr. E. R. McNinch, Weirton; Dr. Sam Milchin, Bishop, Va.; Dr. J. H. Murry, Jenkinjones; Dr. A. B. Musa, Veterans' Administration, Huntington; Dr. N. G. Patterson, McKendree; Dr. J. L. Quinn, Steubenville, Ohio; Dr. D. J. Shaw, Berkeley Springs; Dr. J. A. Stumbo, Logan.

MEDICAL SURVEYS

By this time, all county society secretaries should have received a supply of blanks to be used in making a local survey of medical care, as part of the state-wide study being conducted by the West Virginia State Medical Association and the nation-wide study sponsored by the American Medical Association.

This project is one of the most important ever undertaken by the medical profession and it must be carried to a successful conclusion. For the sake of emphasis and clarification, the following suggestions are offered to local secretaries, or others heading up the study locally:

1. Start the study immediately by getting copies of blank number one into the hands of every physician and every dentist in your county, and copies of other blanks into the hands of the agency or person competent to furnish the data requested. Read the descriptive pamphlet and instruction sheets carefully before blanks are distributed.

2. All completed blanks should be retained by the county society secretary or by the committee making the survey pending further instructions. Later, summary sheets will be furnished each county medical society for the second phase of the study, namely: Summarizing of the information obtained on blanks one-nine, inclusive, and analyzing of the data.

3. Blanks were distributed to all counties in estimated numbers. Some counties may have more copies of a certain blank than they will need; others may need more blanks. A reserve supply is on hand

The Relay Sanitarium

ESTABLISHED 1878 TELEPHONE ELKRIDGE 40

RELAY, MARYLAND

A private sanitarium for the care and treatment of nervous and mild mental disorders. Selected cases of alcoholism and drug addiction. Fifty-four acres conveniently located near Baltimore and Ohio Railroad and Baltimore - Washington Boulevard. Homelike atmosphere; outdoor exercise and recreation.

Well equipped to treat physical disease with mental manifestations.

For Rates and Further Information, Write or Call

LEWIS P. GUNDRY, M. D.

Medical Director

RELAY, MARYLAND

We Make

WASSERMANN, HECHT-GRADWOHL

and

KAHN TESTS

ON ALL BLOOD SPECIMENS

Clinical Pathology

Blood Chemistry - Vaccines - Tissues

Basal Metabolism - Pregnancy Test

Cincinnati Biological Laboratories

DR. ALBERT FALLER, Director
DR. DOUGLAS GOLDMAN, Director

Provident Bank Building, 7th and Vine Street, Cincinnati, Ohio

at Association headquarters and additional blanks will be furnished on request.

4. Make use of centralized agencies and organizations able to furnish data wherever and whenever possible. For example: If you have a centralized nursing agency, district nurses' bureau, nurses' registry, etc., that agency or agencies should be able to supply information for blank number three, saving the necessity of getting information from individual nurses. Much of the information for blank number five should be available from your board of county commissioners, city relief department, community chest or similar voluntary relief agency. Your county board of public assistance can help. At least approach these agencies first. If they can furnish the data, the job with respect to blank number five will be easier.

It is suggested that you do not try to obtain information from each school in your county. Information relative to county schools should be available from the county superintendent and that relative to city schools from the city superintendent. Individual surveys will be necessary when it comes to exempted village schools and private-parochial schools.

Please note that it is not intended that copy of blank number eight should be furnished to each agency or organization indicated. The names of the organizations or agencies should be listed on blank number eight and supplemental data (suggested on the blank) should be appended for each agency or organization listed. Only one copy of blank number eight will be needed.

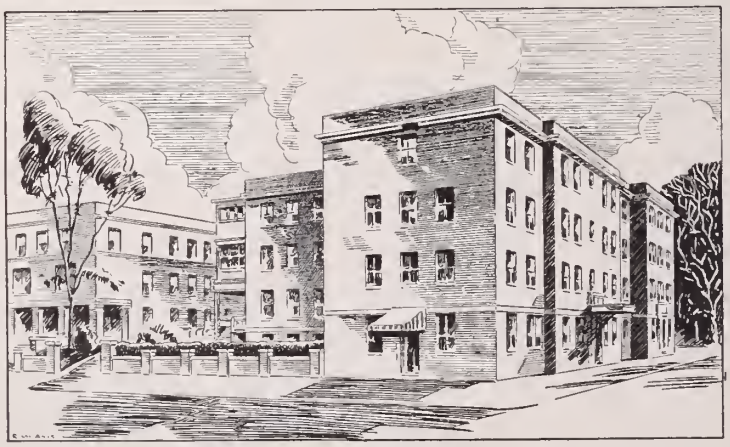
Get local organizations representing the allied professions (nurses, dentists, pharmacists) to help.

Disregard any state institutions located in your county, unless it is a university or college. The state headquarters office will handle that part of the survey relating to state hospitals for the insane, feeble-minded and epileptic, and penal institutions.

"It devolves upon the physician of course to give leadership. Without his whole-hearted interest and direction little can be expected from any psychotherapeutic program. . . .

"We suspect that through vocational guidance and training, with subsequent occupational placement, there has been developed a promising method of forestalling morbid reverie, fears and worries, and that such deterrents to recovery will be replaced by a keen desire to live."—*C. L. Hincks, M.D.*

McMILLAN HOSPITAL Charleston, W. Va.



Accredited by American College of Surgeons

General Surgery:
W. A. McMillan, M.D., F.A.C.S.
J. Ross Hunter, M.D., F.A.C.S.
I. P. Champe, Jr., M.D.
W. O. McMillan, M.D.

Obstetrics:
U. G. McClure, M.D.

Obstetrics and Gynecology:
F. A. Clark, M.D.

Eye, Ear, Nose and Throat:
V. E. Holcombe, M.D.

Roentgenology:
V. L. Peterson, M.D.

Internal Medicine:
H. L. Robertson, M.D., F.A.C.P.
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THE DOCTOR AS A CITIZEN*

(President's Annual Address)

By CHARLES W. WADDELL, M. D.
Fairmont, West Virginia

It has been the custom of many of my predecessors to deal in their annual addresses to this Association with some rather specific phase of medical economics. Last year this Association had the privilege of listening to a masterful presentation of a subject of vital importance to us as a profession and no less important to our patients, the public at large. "The Socialization of Medicine" was the title of Dr. Fulton's address, and with great sincerity I commend you to read it again and often, and to see that it comes to the notice of our patients and through them to our lawmakers. In this address are answered humanly, forcibly and with irrefutable logic many of the adverse criticisms which have been and still are being made of the practice of our profession.

On this occasion I shall not depart entirely from the subject of medical economics. I shall, however, attempt to touch briefly on some of our extra-professional contacts with the general public. Suggesting such discussion is the belief that any useful exercise of our prerogative as citizens will strengthen our position with the public as a great profession worthy of perpetuation as such.

CAUSE AND EFFECT

Until recently it has been the habit of thought universally employed to explain all the evils of the body politic of which we have been so acutely aware in the last twenty years —poverty, intemperance, crime, general social unrest, dissatisfaction with the existing order of things—as resulting immediately or remotely from the World War. In our everyday life the relationship of cause and effect is not always appreciated. In world history this relationship is rarely suspected by the existing generation. Though we have long since ceased to believe that the cataclysm which involved the civilized world from 1914 to 1918 had its origin in the murder of a rather inconsequential person in Sarajevo, we are just beginning to suspect that the slaughter of the world's youth, the ghastly suffering and misery for which we now and future generations will continue to pay toll, had its

*Read before the West Virginia State Medical Association at White Sulphur Springs on July 12, 1938.

roots in more ancient soil and was but the present manifestation of causes long active.

To discuss these causes is scarcely within the province of this paper, though in passing we may without wishing to be controversial, mention as most patent such facts as dissatisfaction in Europe over the settlement of previous international conflicts; the wide spread between great wealth and extreme poverty; the flagrant cruelty and utter disregard of human rights manifested by certain despotic governments; and most certainly the invention and extension of labor-saving machinery displacing the need of manual labor and temporarily dislocating the operation of the law of supply and demand as applied to labor.

GOVERNMENTAL ACCOMPLISHMENTS

Whatever the causes, their most evident results have been an ever increasing lack of employment and consequent poverty. It would not be fair to say that the numerous attempts in different countries, whether known as Communism, Fascism, Nationalism, or New Deals, have not accomplished something in correcting the faults in our social structure by improving living conditions in general, shorter hours and increased pay for the laborer, and a higher level of intelligence. These attempts, however, have not proceeded in an orderly fashion along the lines of a preconceived and well-ordered plan, but have been revolutionary outbursts of resentment. Being in the midst of these social upheavals it is impossible to evaluate the gains made, if any, or to forecast what the end shall be. In past history all great advances in social improvement have been made by revolutions entailing great loss of life and incalculable suffering. Witness the French Revolution and our own struggle for liberty out of which grew the world's most notable experiment in democratic government. Looking back on the despair and apparent hopelessness of those struggles, we may, perhaps, have reason for expecting order and better living eventually to emerge from the present state of chaos that enshrouds the world.

Of vital importance to us as a profession are these outstanding facts. Increasing population; increasing demands for medical care; decrease in employment and consequent shrinkage of the ability to purchase medical care along with the other necessities of life by an ever growing segment of our population. How natural, therefore, that this segment should turn to a benevolent and paternalistic government which has furnished food and raiment, shelter and heat, and expect it also to supply the needs of the sick and injured. This service to the sick very justly should be supplied at public expense to those unable to obtain it otherwise. This is only a humane duty about which none of us should quarrel. It is the method of doing this thing, however, and not the fact, that concerns us as a profession. Until the very recent past the care of the indigent sick has been a function very largely of private charity. During the years of financial depression there has been a notable lag in the efforts of government to assume the obligation of the needy poor's requirements for medical care, with the result that the medical profession, alone and in conjunction with private charity, has been the residuary legatee of one of the greatest problems growing out of the present social revolution. How this problem is worked out in the future will determine almost entirely our status; whether we shall continue to exist as a learned and honored profession, self-governed and with rights of individual initiative; or regimented employees of an ever changing government, subject to the ambition of selfish politicians and the whims of labor organizations. Last year our beloved Dr. Fulton painted vividly the picture of our existence as mere cogs in the wheel of state medicine. To avoid this calamity we shall have to proceed with caution in our professional capacity and to act with firmness and decision as good citizens. How this matter may eventually be resolved is not yet clear. We have, however, made some significant steps toward a solution.

In West Virginia I think we may be particularly proud of our relationship with the Department of Public Assistance under which our condition is certainly more desirable than exists in many places. This happy state of events can be attributed to one thing only—the intelligent activities of this Association through its carefully chosen representatives. This example seems to indicate clearly that our mode of procedure in the future must be through the medium of organized medicine, with the American Medical Association at the helm and its constituent associations and county societies united and working in harmony.

THE FIRST CONSIDERATION

In the solution of this problem we believe the first consideration is to supply the indigent with medical care of the highest type obtainable, equal in quality and efficiency to that purchasable by the wealthy. This desirable type of service we believe can be supplied only by a profession practicing on the present competitive basis, motivated by the desire to justify the continuance of its existence. In furnishing such service we believe we are fully justified in acting through the channels of organized medicine to attempt to secure from the purchaser, the state, the same consideration as to value and mode of delivery as prevails in the purchase and distribution of food and other necessities of life. Through the continued intelligent exertion of our efforts as members of a profession with the highest humanitarian ideals, through well established channels of organized medicine, and exemplary conduct as citizens in the broader sense we believe will ultimately come a solution acceptable to us and beneficial to society in general.

However much we oppose the usurpation by the state of our prerogatives as a profession free to carry on in accordance with enviable traditions, we no less recognize the necessity and desirability of governmental participation in certain phases of medicine. The collection of vital statistics, provision for the control and regulation of communicable disease, measures in general directed toward the promotion and protection of the public health seem as naturally the function of the state as are the establishment of suitable standards for licensure to practice. While conceding that the state can perform these functions better than we alone, we are equally emphatic that the patient, in his treatment of disease, will receive a higher type of service under the present competitive system than if all his medical needs were administered by a paternalistic government. There should be no cause for conflict between the government and our profession in matters of public health. We need always to sharply differentiate between the government's participation in promoting the public health and its attempt to take over the practice of medicine. Most of the friction that has existed up to this time has been chiefly of academic interest. Many hours have been wasted in county societies over the controversy as to the violation of the rights of the private physician by health officials in the immunization of school children, the stock argument being that such activity by the health officer is but the entering wedge for state medicine. In theory this argument may be sound, and it is undeniable that many school patrons unscrupulously take advantage of free immunization of their children thus depriving the family physician of legitimate fees. On the other hand these immunizations are required by laws which we as a profession either initiated or approved, and if the requirements of the law are not otherwise fulfilled the health officer must do this work. That the intent of the law is sometimes overstepped is probably a fault of ours in not more vigorously educating our patients in preventive medicine. When carried to its logical conclusion the matter at issue is not of major importance, and its solution seems to lie in better cooperation between the private physician and the health official. This is another opportunity for us to display good citizenship by taking a lively interest in the personnel of those who administer our public

health laws and increasing their effectiveness by unstinted cooperation.

In West Virginia we think the facts justify the belief that there exists a friendly feeling of cooperation between the Department of Public Health and our Association. This has not come about by mere accident but is the result of the intelligent activities of our Association's leadership. This state of cooperation deserves our careful nurture in the future.

CONTROL OF VENEREAL DISEASE

As a national movement, instigated by Surgeon General Parran, the public health departments of the United States have essayed to bring under control venereal disease. Though barely started this movement has received our universal endorsement and our promise of cooperation. It is squarely up to us to make good on this promise. Without our wholehearted cooperation it will come to naught. The private physician is the keystone in the arch of success. The implications of our promise to cooperate are far-reaching. We must in the first instance be more diligent than ever before in searching out and reporting these diseases. In the second place we must bring ourselves up to date in our methods of treatment so as to conform with accepted standards. In the third place we must be willing to make some concessions in the matter of fees for treating venereal disease. Outmoded, if not actually unethical, is the old idea, universal in its application, not merely existent in this country, that it is a disgrace to acquire syphilis and that its victim should be penalized to the limit of the doctor's conscience and the patient's ability to pay. Unreasonable fees will do one of two things: drive patients who could and would willingly pay a small fee to free clinics; or worse yet, deprive them of any treatment at all, thus defeating the object of a most worthy undertaking. These matters deserve our most serious consideration, and if we do our whole duty syphilis in a few generations will become as rare as typhoid or smallpox.

To touch upon the matter of professional fees is always a delicate matter. Yet, I believe if we are to maintain that position in the esteem of our fellow men outside the profession which we desire and need, we must think and talk more about this matter and bring it into the open for corrective treatment if such is found desirable. It has been very gratifying to note that the editors of our JOURNAL have had the daring to editorialize this question, and still more gratifying is the information received that the apparent reactions to these editorials have been wholesome. It would be shutting our eyes to the facts if we did not recognize that ill considered and inexcusably high fees in certain instances have let us in for merited criticism by the laity and furnished ammunition to those who advocate socialized medicine. Such practices are undoubtedly not the rule but their occasional occurrence affords the opportunity for those who would destroy us to make the accusation of inhumanity and extortion. In the early days of railroading, before the existence of bureaucratic regulation of everything from peanut vending to Wall Street, it was the practice of one of the great transcontinental railways to charge for service, passenger as well as freight, all the traffic would bear. In lieu of any more rational system this rule has probably been employed by the professions, ours as well as others. In the case of the wealthy its application has probably worked no hardship. The indigent have always received their medical care without pay. Between these two extremes, however, is the great middle class from whom we derive the greatest portion of our income, too proud to accept charity but often overestimated in its ability to pay. This class has no doubt often been the victim not of the doctor's cupidity but of bad business judgment on his part. If one but casually reads the lay publications he cannot escape the conclusion that we come in for a great deal of adverse criticism on this matter of fees. More often than not this criticism is unjust and lacks discrimination. The complainant

often puts into one lump sum the total cost of an illness including hospital care, nursing service, expensive special medication, and calls it the doctor's bill, while actually the doctor's charge for services constitute only a small part of the total and is very likely to be the last item paid. External appearances are often deceiving and this is probably one reason why the public is so ready to criticize us. Most of us, by the very nature of our activities are obliged in the performance of our daily duties to exhibit the external evidences of prosperity and good living; very few of our profession die rich. Statistics show that the average earnings of physicians in this country are not above those of the capable artisan fortunate enough to have steady employment. The doctor contributes more to charity in the way of personal service than any other member of society in addition to voluntary contribution of funds for the support of various forms of public welfare, and in addition to the innumerable and inescapable forms of taxation to which the public in general is subject. These and other facts behind the screen of the doctor's life, comparable to the items in commercial life listed as overhead, constitute the justification and the necessity for service charges which to the public may easily seem high and sometimes exorbitant. As a matter of fact we believe exorbitant professional fees are the rare exception, and should not therefore incriminate us as a profession but should be regarded as occasional aberrations of judgment common to humanity in general. Unfortunately I can offer no definite advice for the correction or avoidance of these annoying aberrations. How much it is worth to anyone to have his appendix removed or to be treated successfully for pneumonia cannot be determined by the use of the slide rule. Fee schedules are useful and sound in theory, but blind adherence to them is not always justifiable. Though our profession has its business aspect it is yet not a business. From the standpoint of policy it seems desirable to omit no opportunity to conciliate a hostile public, and one thing we can always do in the matter of fees is to try to temper the wind to the shorn lamb.

It is interesting to contemplate the relationship between doctor and patient as affected by the mutations of time and other circumstances. Some historians, in tracing the origin of medicine are inclined to go behind the misty limits of recorded history and establish our beginning in the realm of the gods as descendants of Aesculapius. About the only present discernible connection with Greek mythology is our occasional use of the Caduceus in some of our professional insignia. Knowing so well the frailties of mind and the other predominatingly human characteristics which motivate our daily lives it is perhaps just as well, from the standpoint of modesty at least, to disclaim divine origin. Be that as it may, ministrations to the sick in the earliest times were sacerdotal in character and relief of suffering in those days was accomplished not so much by administering to the body as to the mind and soul. In the days of primitive medicine the efficacy of the medicine man was in direct relationship to the amount of noise he could create. In general our profession has outgrown this cloak for ignorance, although one yet occasionally discovers a colleague whose therapeutic ability consists more in bombastic claims than actual scientific attainments. Such rare examples the biologists, I believe, refer to as reversions to type.

SPIRITUAL MINISTRATIONS

Though we no longer regard disease of the mind and body as evil spirits, every good doctor performs as many cures and relieves as much suffering by spiritual ministrations as by the exercise of the exact methods of science. This he may not do knowingly or intentionally but the human mind is so constituted that many of our patients come to us as father confessors, seeking relief unwittingly from subconscious doubts and fears. To the patient's mind the first essential in the qualifications of his doctor is confidence. Too often, we fear, this confidence is engendered not from too close scrutiny of the doctor's

educational background and professional training, as from a consideration of less important and more superficial characteristics—the skill of his tailor, the furnishings of his office, his suavity of manner, sometimes even his wife's wardrobe. With such stage settings it is easy to visualize the entrance of the quack and the various types of irregular practitioner.

HUMAN WEAKNESSES

Most quackery exists in the first place because of certain inherent human weaknesses, unjustifiable credulity of mind, the longing for the unattainable; in the second place because it is profitable to those who practice it. Clearly the blame for this should not be laid at our door. There are certain forms of irregular practice which we might obviate to some extent at least. The irregular practitioners to which I refer cater to a demand not generously enough supplied by the regular profession. Many cults and "paths" flourish today because they dispense some form of therapy, which is positive, only rarely harmful, and occasionally beneficial. We rightfully consider it beneath our dignity to administer massage, reduce dislocations which do not exist and make so-called adjustments when none are needed. It is our province, however, as educated physicians, to prescribe physiotherapy when indicated and our much neglected duty to see that facilities for such are at hand in every community, administered ethically and skillfully by capably trained operators. Physiotherapy need not be confined to large medical centers, and in smaller communities it should not be brought into disrepute by irregular practitioners or used as a side issue and racket by physicians and surgeons too busily engaged in other phases of practice.

Though the extremely personal relationship between patient and physician to which we have referred invites quackery, it also challenges the honest and capable physician to do his duty just as conscientiously to those merely sick in spirit as to those organically affected. His cultural background and his broader education and professional attainments fit him to minister to those suffering from functional derangements of mind or body much better than the charlatan. It was in this capacity the family physician one time functioned so effectually and we hope the future may see a return to this happy relationship.

Nothing we have said has been intended to disparage specialism in medicine. Since the days of the good old doctor on horseback great advances have been made in the basic sciences and their application to our art and practice. These forward strides we hope will continue unabated. Specialism was inevitable and the future will undoubtedly see still further subdivision in the fields of practice. Still it is apparent that the advantages growing out of the greater efficiency of specialism have been secured at some cost to the patient in the sacrifice of that human and beneficial feeling which existed between the old time family doctor and his patient. To some extent the laity is to blame for this. In their efforts to be modern some families have specialists covering every condition from ingrown toe nails to brain tumor, selected on their own initiative. We believe the beginning of the solution of every family's medical problem should be consultation of the well trained general practitioner, who should determine the need for and advise as to the selection of a specialist. Hence we are led to say "Fortunate is the patient who has a good family physician."

THE DOCTOR'S DAY

Much has been said in the present century and volumes of the Congressional Record have been filled with arguments favoring shorter working hours and increased pay for the working man. Planks favoring it have been nailed into the platforms of political parties. The Wage-Hour bill has finally been passed by a weary Congress and has become a law. It does not contain a word, however, about eliminating a single one of the twenty-four hours constituting the doctor's day much less any reference to in-

creasing his pay. Apparently any relief along this line will have to originate in our own initiative. It is scarcely necessary, I suspect, to advise that we avoid being over sanguine in our expectations of accomplishing anything along either line.

In all seriousness, however, unemployment and the curtailment of the working day have created a problem of very great importance. How shall those of our citizens so effected use the spare time thus provided, and how will it affect the moral, social and civic life of the community? In the solution of this problem it would seem that we as physicians ought to be able to lend valuable help both by precept and example. The object of legislation bringing about shorter working hours and more leisure had for one of its objectives the greater spread of available employment, or in other words the absorption of unemployment. Obviously, then, the spare time so provided should not be spent in productive work on an economic competitive basis. Neither should the end result be an increase in the operation of beer gardens of questionable moral standards, gambling dens, and other dives of iniquity. Clearly the humanitarian motive above and beyond economic implications was to provide time for healthful recreation. As good citizens we should be interested in extending existing facilities for such recreation and providing new ones. As measures of a public nature gymnasia, public libraries, swimming pools, tennis courts, golf courses, come to mind. These, however, are not enough. Our school system should assume the leadership in teaching us how to play. We as a people must learn how to play, how to relax, how to meet the problems of daily life more complacently.

AVOCATIONS

Bearing on this broader problem of how to get the greatest good out of increased leisure but having a special application to members of our profession is the matter of avocations. We believe that an avocation is just as essential to our mental, moral and physical welfare as a vocation. Everyone should have at least one hobby; doctors should perhaps have more than one. The idea underlying a hobby is not new as is evidenced by the old saying "All work and no play makes Jack a dull boy." This statement is likely of a coinage more ancient than the American people. Probably as a heritage from our sturdy ancestors who settled a new and hostile country and were so engrossed in the struggle for existence as to have little time for the amenities of life, we as a people have never believed it was quite orthodox to play. On the doctor, work to the exclusion of play wreaks worse havoc than to make him dull; in fact it makes him burn too brightly but not long enough. The perusal of that weekly column in the *Journal of the American Medical Association* grimly entitled DEATHS cannot be said to be inviting or entertaining, or reassuring, although it is informative from a news standpoint. It should, moreover, be menacingly instructive.

Observing the large number of our colleagues well below the age when chloroform or other form of euthanasia would seem to be indicated, colleagues who pass on as a result of chronic degenerative conditions manifested by cerebral or cardiac accidents we find it difficult not to believe that the undue strenuosity of living under modern conditions is not a prominent etiological factor. Ecclesiastes may prophetically have had in mind the modern doctor when he said "What profit hath a man of all his labor which he taketh under the sun?"

Little can probably be done to overcome the long hours and the irregular habits of the doctor's life; but much can be done to ameliorate the killing effects of unremitting labor by the cultivation of new interests which divert the mind and soothe the spirit. Though we may not all be ardent apostles of Isaak Walton the gist and the final significance of any avocation was aptly expressed by Herbert Hoover in writing of fishing: "Fishing is not so much the getting of fish as it is a state of mind and the lurement of the human soul into refreshment."

The possibilities of selection of an avocation are almost unlimited. Within my own circle of friends in the profession perhaps fishing, hunting, and golf, rank numerically highest. Several have combined photography and the hunting of large game. One notable example has gone into horticulture scientifically and by selection and cross fertilization has succeeded in improving the strains of some of our most beautiful garden flowers. Another writes short stories; another collects first editions. One of my friends exhibiting unusual versatility deserted his former accomplishments in woodworking to become an amateur lapidary and now gets pleasure out of developing graceful curves, symmetrical angles, and beautiful facets out of the irregular surfaces of semi-precious stones. The exact nature of a hobby matters little so long as it relieves the mental and spiritual tension of its possessor, whether it be sailing a yacht or collecting postage stamps.

PHYSICIAN ARTISTS

Recently at the meeting of the American Medical Association much emphasis was placed on the extent and importance of avocations. Though not an integral part of the recent A.M.A. meeting there was held at the same time in San Francisco a meeting of the American Physicians' Art Association at which were exhibited many creditable examples of the accomplishments of busy practicing physicians in the United States, in the realm of the fine arts—painting, etching, sculpture, literature. Doubtless other forms of avocation will be exhibited and stressed at future meetings of the A.M.A. In this instance this particular activity was of sufficient importance to make possible daily luncheon meetings with such distinguished honor guests as Morris Fishbein and others. One sound conclusion which may be drawn from this event is that the arduous and confining duties of the practicing physician need not deprive him of the opportunity of relief from the daily grind by the indulgence at spare moments of his natural inclination to spread the wings of his soul and take short flights into the world of idealism. Painting, sculpture, poetry, may not be a form of expression for which many of us have talent but the accomplishments along this line just mentioned show the latent possibilities in all of us for some sort of creative work giving expression to our spiritual life.

BEYOND THE MATERIAL

There is a natural reticence in most men to think, or at least to talk, about that phase of life which lies beyond the material. Yet in this ultra material sphere lie most of the things by which and for which we live; the things for which we struggle to accumulate wealth; the things which appeal to the mind and minister to the soul. Disavowing any intent to invade the indefinite realm of metaphysics I think we may safely say that each of us recognizes the existence in himself of something above body and mind, call it soul or what you wish, which distinguishes us from the beasts of the field. This intangible and incomprehensible something seeks expression in all of us whether or not we have the power of expression. In religion we speak of this expression as worship, and worship has been said to be the highest form of culture. Such notable examples of architecture as the celebrated cathedrals of Notre Dame, Rheims, or the Westminster Abbey, were not created for utilitarian purposes. Deity can be worshipped in the open fields or under the canvas top of a tent. These noble examples of man's art represent his ambition to express his spiritual life and show his belief in the relationship between the finite and the infinite.

As members of a great profession, desirous of maintaining a lofty position in society earned at the expense of much effort over many years it behooves us as men of culture not to lead a life of seclusion. Undoubtedly we shall continue to have internal problems in our profession affecting our relations with each other and our patients, the public in general. As an example, one of our most serious problems at present is that of list practice which at times has seriously impaired

the usefulness and even threatened the existence of certain county societies. We have not previously mentioned this subject on this occasion; neither have we studiously avoided it. We are all aware of its existence and all recognize that it violates our ideals. It is a practice which originated in the necessity occasioned by the development of unusual industrial conditions and was probably the only immediate remedy at hand. There is no denying, however, that in the past there has been an unjustifiable spread of this type of practice amounting in some instances to exploitation. In the background of such exploitation has often been evident cupidity on the part of industrial management, labor organizations, and, I regret to admit, some members of our profession. It is not our feeling that we should turn our back on this serious problem but that we should most vigorously oppose its unwarranted extension; and while conscientiously endeavoring to correct its evils, view with tolerance and hopefulness the present state of affairs. While trying to solve this and other problems relating to our profession, and in particular trying to eliminate this type of practice, we must ever remember that the ultimate criterion by which any system of medical practice is judged will be the manner and efficiency with which it meets the requirements of those for whom it is intended. In other words, the patient's needs come first, and then in natural order a consideration of our rights and privileges.

SHARE DUTIES OF CITIZENSHIP

The solution of these problems though difficult and time consuming need not preclude us from participation in the activities of society at large. The happy conclusion of much of the turmoil existent in the disrupted social state of today can be hastened by our sharing in a productive way the duties of citizenship. Though the administration of public affairs may not fill us with civic pride, and the conduct of those selected to represent us often disgusts our sense of propriety we shall make no progress in improving the character of government by maintaining an attitude of haughty aloofness. We should not shy away from politics even at the cost of soiling our hands. The moral tone of Congress and our state legislature would be raised by a generous representation of our profession, elected not as class representatives but because of their knowledge of the needs of society in general. School boards need us. Churches, of any denomination, would function better if some of their empty pews were occupied each Sunday by doctors, and this without detriment to the doctor! Who could be more helpful in the administration of relief, public and private? We need to break the professional shell in which we have been nurtured and be born again into a wider sphere of usefulness. To combat successfully the thrust against our existence as a learned profession, worthy of complete autonomy, we need not alone to add continually to our technical training; we must also discharge our duties as men of learning and culture, humanly, civically, spiritually.

MAN IS CHEMICAL LABORATORY

Man himself is a walking chemical laboratory which continually manufactures poisons, declares Dr. Charles Solomon in his article "The Doctor Prescribes," which appears in the July issue of *Hygeia.*

These deadly poisons circulate in our blood. A pharmaceutic chemist could prepare from our own bodies poisons as deadly as any with which a primitive tribe ever tipped its arrows and spears.

For example, insulin is absolutely necessary to life itself, but an overdose can easily lead to fatal convulsions. We must have eight mg. of it every twenty-four hours, but an injection of from 20 to 30 mg. would kill an adult of average weight who had gone foodless for a couple of days. Epinephrine is needed in such small amounts that an injection of 10 mg. would kill the average human being.

It cannot be said that poisons have only ill effects, for many organisms could not live without using poison. Most organisms manufacture their own. If a snake's poison is expressed too soon after it sloughs or feeds, the creature dies.

STANDARDIZATION OF LABORATORY TECHNIQUE*

By G. H. BARKSDALE, M. D.
Charleston, West Virginia

It is with pleasure that I have for my subject this morning certain aspects of technique and management in our state and hospital laboratories. Having been tremendously interested in clinical pathology in the early days of my practice I have managed to sustain a part of this interest ever since. Primarily because laboratory procedures have progressed to such a point that one in this day and time cannot hope to compete in the general practice of medicine or read the current medical literature intelligently without at least giving the subject moderate study. I do not mean that one should grab at every new thing that bobs up in the literature, for no small part of such procedures are of value only in the minds of the men who report them, and I might add that no division of clinical medicine is making more rapid progress than the clinical laboratories. And this is as it should be, for without research to give us new and better methods, we stagnate. It has been said "Be not the first by whom the new is tried nor yet the last to lay the old aside," meaning to me that we as practitioners should look upon the laboratories as helpers and consultants to direct us as to which of the new methods should be kept, which should be improved and which to discard.

WELL INFORMED LABORATORIES

This brings me up to my text. If we are to do good medicine and sanitation, we must require of our laboratories, both private and state, that they inform themselves of what is the best and most practical test for a specific purpose and see to it that they do it according to an approved standardized technique. It is all wrong that one worker, for example, should read his Wassermanns at once, while another leaves his in the ice box over night. Another may report a given flocculation test as viewed under the microscope, while another holds his tubes up to the light. So the first step for more accurate reporting is that we speak the same language through standardization of methods. It is grossly unfair and misleading for a hospital laboratory in one city, who uses an entirely different technique, to dispute the findings of a laboratory who has employed another technique, one of which may be much more sensitive than the other. I assure you there will be no true progress until all of our laboratories look to the United States Public Health Service and other authoritive sources for leadership and all as a unit adopt the same approved standardized methods. The American Public Health Association issues an annual report on improved methods which might well serve as a guide. If this ideal is to be attained we must insist that employees know their work. Nothing is more dangerous than half-trained youths, working alone in small hospital laboratories. If this must be, then do not expect too much of them. It is better to have a few tests done well than a large number done doubtfully so. It is well known that the larger the volume of work done in a laboratory, the greater the accuracy. Their regents are fresher, their technique is more precise and generally speaking, there is more supervision. It is the duty of a well-trained worker to occasionally take stock and if he finds that his positives, for example, are in excess of the anticipated percentage he should suspect that something is wrong and straight away find out what is the matter. So much for the standardization of technique and the dangers of poorly-trained workers more or less working alone, and by the same token we physicians, if we don't know, should be taught our part in the proper collecting

*Read before the West Virginia Health Officers' Conference, Charleston, October, 1937.

and delivering of specimens. Blood for a Kahn, or any other serologic test, should show no hemolysis, (age, rapid taking, wet syringes, etc.) One laboratory may report meningococci present in fresh spinal fluid; the next day, on the same specimen, another worker might find no meningococci and so report. The physician should not have delivered other than a fresh fluid for study and the laboratory should have reported on same with great reservation, as meningococci are highly bacteriolytic. The same is true of blood sugar, one should only report sugar in a blood recently taken, and so it follows that the matter of standardization has other applications.

RESPONSIBILITY OF REPORTING

In the general practice of medicine, as in clinical pathology, there are many things that we can do poorly to reasonably well and get away with them and no one is hurt thereby. Again the range of normal may be such that no real harm comes if the report is not just right, but what of those procedures which are only all right or all wrong? The responsibility in such reporting is tremendous, and yet a surgeon may walk into a hospital where he is entirely strange, request that a blood be typed. What guarantee has he that his patient may not pass out on account of an overwhelming reaction, the result of inaccurate work? The typing of pneumococcus should have been reported Type I, was reported "does not type." This may mean the loss of a life. The same applies here and there all along the line. Worst of all are those unfortunate individuals who are condemned for years to mental anguish, and perhaps months or years of unnecessary treatment because a blood was wrongly reported positive for syphilis. Clinical pathologists and technicians should also be standardized.

It is probably fair to state that the testing of blood for syphilis is the most valuable single laboratory procedure and it is startling even to those who have kept up with serology to realize the vast amount of work and money that has been expended, struggling to raise the tests to the maximum in sensitivity, (i.e., the number of specimens reported as positive in known positive sera. Given for example 100 specimens or serum, all known to be from active syphilitics and should all be positive, only 84 reported as such. The sensitivity would then be 84 per cent, leaving a deficit of 16, or 16 per cent). Very fortunately we have two highly sensitive tests for syphilis, the biologic workings of which are quite different. The Wassermann being dependent on the fixing of complement in the presence of other factors by the syphilitic anti-body, with a resulting failure of hemolysis of blood cells added as an indicator. While in the flocculation test such as the Kahn, antigen combines with a syphilitic anti-body with a resulting rapid formation of flocculi, no ambocepter or compliment being used. Further it is fortunate that we can play one against the other, as in the hands of experts their sensitivity is near the same. Over the past three years, the United States Public Health Service has carried on most extensive tests, comparing among other tests for syphilis, the Wassermann as done in Kohlmer's laboratory with the Kahn as done in Kahn's laboratory. Each year has shown an improvement over the previous year, reaching a maximum of 88.9 per cent sensitivity in 1937 for the Kohlmer-Wassermann and 84.5 per cent for the Kahn, leaving a deficit of approximately 15 in every 100 known syphilitics, meaning that even in the best hands there is no known serologic test which is 100 per cent diagnostic for syphilis. Our state laboratory recently had the privilege of taking part in a similar survey carried on by 39 state laboratories, each using their own methods. Three hundred specimens were submitted, 200 positives and 100 negatives. In this massive experiment their Kahn was reported 75.6 per cent for sensitivity, against 84 per cent in the control done by Kahn. This, we feel, was a very splendid showing for our state laboratory and I might add that they are now making their own antigen and as a result have had an appreciable decline in their de-

ficit. It seems that when we exceed this point of sensitivity (84 per cent) that the test becomes too sensitive and false positives tend to creep in. It is very striking that most of the 39 state laboratories were 100 per cent correct in reporting no negative sera as positive, so if you are going to suspect your report of being incorrect the error will more probably be in reporting a positive sera as negative. False negatives, on the other hand, will be obtained under ideal conditions and where the work is not of the highest grade may actually reach the startling figure of 61.2 per cent. All of this means a tremendous striving towards standardization. Do a Kohlmer-Wassermann or a Kahn, as you wish, but adhere rigidly to the prescribed technique of each as to preparation and standardization of antigen, standardization and titration of ambocepter and complement—and quite important—keep a record, and if you are not getting approximately the figures given by the control laboratories, then look to your technique, and remember, you cannot take issue with Kohlmer or Kahn if you do not do every detail as laid down by them. Be it emphasized here that there are only three tests approved by the United States Public Health Service for the serologic detection of syphilis—the Kahn standard, the new Kohlmer-Wassermann and the Kline standard. What then are we to do about it? It would seem that the following recommendations are in order:

1. Doctors should be shown that there is a standard procedure for procuring and handling specimens. (Blood sugars on fasting patients, fresh spinal fluids, deep sputum, etc.) We need more talk at medical meetings on the basic laboratory tests and much less concerning urea clearance tests, and what not.

2. That laboratory technicians, before they go out on their own, should have some credentials. Their work is certainly equally as responsible as that of nurses or pharmacists, and do not forget that they should be paid in proportion to what you expect of them.

3. The laboratory workers over the state should get together at least once a year in a more or less informal way and elect standard procedures nad be made to feel free to ask questions concerning their own problems and to be informed that our state laboratory is doing excellent work, that they are eager to lead in standardization and will welcome young men and women who wish to come to the laboratory for periods of study and observation.

In concluding, I wish to say that I have attempted to make one point only, and that is that our state and private laboratories will render their very best service when doctors and technicians grasp a full appreciation of the value of standardized methods, standardized doctors and standardized technicians, no one of which can do the trick alone.

TIME TO EXERCISE

The most important time of all for the busy man to take recreative exercise is when he has no time for it, declares Dr. Dudley B. Reed in the fourth part of his series entitled "Exercise," which appears in the July issue of *Hygeia*.

"If he is so driven by this and that that he doesn't have a minute for such unnecessary fol-de-rol it is almost essential that he take the time if he wishes his next day's and his next week's work to be efficient," says the author.

The man who has plenty of time for recreation has no great need of it. What he probably needs is a little work. That would be the real change for him. It is the busy man, not the idler, who secures change and relaxation in this way. If there are differences in the pressure of work on him he may omit his recreation when his work is light, but he must put it in when work is heavy.

A most desirable time for this type of recreation is when the potential exerciser is nervously tired. Many a man, at the close of a particularly trying day, feels too tired to do anything but throw himself down on a couch and wait for the night.

But if his weariness is from nervous work, many a man has found that physical recreation removes his fatigue and makes a new man of him for the evening. This will not be the case if the fatigue is muscular.

TYPHOID FEVER

By A. M. PRICE, M. D.*
Charleston, West Virginia

THE control of typhoid fever and its allied diseases is probably one of the greatest achievements in the field of preventive medicine. The cause, mode of transmission, and the method of prevention are well understood in theory and readily obtainable in practice. This disease has a world wide distribution. It is endemic almost everywhere, but it is more prevalent in the temperate zones. The control of typhoid fever has in the past and continues to be at the present time in West Virginia a large problem in the field of preventive medicine.

The disease occurs mainly during the summer months from June to November. It attacks all ages but particularly those between 15 and 35 years of age. Those below three years of age and above 50 years are seldom attacked. The case fatality usually averages about 10 per cent. It has been found to vary from five per cent to twelve per cent in private practice and from seven per cent to twenty per cent in hospital cases, but as a rule the fatality rate is much more constant in this disease than it is in most others.

MORTALITY RATE

In 1900 the death toll from this disease alone was approximately 35,000 which means that on the basis of ten cases per death there were 350,000 cases in the United States registration area. In 1936 there were only 3,098 deaths and on the same basis of ten cases per death there were approximately 30,980 cases. Figured on the basis of death rates, in 1900 the rate was 35.9 per 100,000 population; whereas in 1936 the rate had been reduced to 2.5 per 100,000 in the United States registration area. In West Virginia the morbidity and mortality rate from this disease has not decreased generally at the same rate as it has in the United States as a whole, but during the past five years there has been a more rapid decrease in this disease in West Virginia than in other sections of the United States.

The following table gives a comparison over a five year period from 1932 to 1936 of the death rate from typhoid fever in the United States registration area with that in West Virginia:

Year	1932	1933	1934	1935	1936
U. S. Rate	3.7	3.6	3.3	2.8	2.5
W. Va. Rate	12.3	7.9	6.9	5.2	4.4

The typhoid germ enters by the mouth and grows and multiples in the intestinal tract, penetrating the mucosa and thus enters the body. The bacilli leave the body mainly in the feces and urine but occasionally in the sputum and other discharges. They appear in the feces early in the disease and usually disappear during convalescence although they may continue indefinitely and the patient become a chronic "carrier." The typhoid bacilli appear in the blood early in the disease and a positive blood culture can be obtained in about 90 per cent of the cases during the first week of infection, gradually disappearing until about the fourth week when only about 35 per cent of the cases will show a positive blood culture. The Widal does not become positive until approximately ten days after infection, after which time it will persist for months or years after the patient has recovered from the disease.

CARRIERS

A very high percentage of persons infected with typhoid fever become convalescent "carriers"—that is the typhoid germ can be demonstrated in the intestinal discharges for weeks after apparent recovery of the patient from the disease. Because of this no case should be released from supervision until at

*Director of Rural Sanitation, State Health Department.

least two negative stool cultures have been obtained. About two per cent to four per cent of all cases will become what is known as chronic "carriers"—that is the germ can be found in intestinal discharges for years after the patient has recovered from the disease. These chronic "carriers" present an ever increasing problem. The importance of the carrier increases with the decrease of typhoid fever. They are the reservoirs which carry the disease over from year to year.

CONTROL OF CARRIERS

The control of carriers is a problem which has not been completely solved in any state and in most of the states it has hardly been attacked. There is no drug which will clear up this condition and the only effective means of changing a person from a state of a "carrier" to a "non-carrier" is by the removal of the gall-bladder. In 68 persons operated on in New York State there were 68 per cent who showed a complete disappearance of the typhoid germ from the intestinal discharges and entailed a mortality of 3.7 per cent. This procedure should only be advised after a careful consideration of the physical condition and the age of the carrier (those over 60 years of age should not be subjected to this operation) and it should not be advised unless preliminary duodenal specimens show the presence of typhoid bacilli in the bile.

It is not necessary to quarantine "carriers", but a complete record should be kept of them, and their activities should be closely supervised. A chronic "carrier" should never be allowed to work in restaurants or hotels where food is prepared and served to the public or where he would handle food of any type in the raw state.

Typhoid fever is spread by cases and carriers both by direct and indirect contact—indirect through water, milk, milk products, oysters, and other foods; also through flies and fomites.

Water as a vehicle for the transfer of this disease germ, while it plays a large rôle, has been far over estimated in the minds of the general public. Almost invariably where the source of infection is not obvious to anyone without investigation to determine the source, the water supply is condemned. In 1908 Whipple estimated that only 35 per cent of the typhoid cases of that time were contracted through water supplies and certainly with all of our advanced methods of water purification today this percentage has been markedly decreased until today water as a source of the spread of typhoid fever plays a comparatively small rôle as compared with its reputation as a means of spread. It might be pointed out that the typhoid bacilli do not multiply in water and only live on an average of seven days in this type of environment.

Milk on the other hand is a culture medium for the germ—not only will it live in milk, but it will multiply at a very rapid rate. In 1908 Trask collected records of 317 typhoid epidemics caused by infected milk, and never a year goes by but what numbers of epidemics are reported in this country which have been traced directly to infected milk. According to Rosenau, milk borne typhoid is always due to raw milk and there is no instance on record of an epidemic coming from properly pasteurized milk.

PREVENTIVE MEASURES

One of the first essentials of the control of any disease is that the agency responsible for control measures have a definite knowledge of the cases as they occur. For the past five years from 1933 to 1937 inclusive, there have been reported to the State Health Department an average of 406 cases per year but based on the accepted assumption that there are ten cases per death there should have been approximately 800 cases reported. This shows that only approximately 50 per cent of the cases are being reported in this state.

It is highly desirable, but in many instances impossible that all cases of typhoid fever be hospitalized. Few homes, particularly in the rural sections are prepared to care for a long drawn out case of typhoid fever and at the same time protect themselves and the com-

munity against the spread of the disease. Where cases cannot be hospitalized, every precaution should be taken to prevent the spread of the disease among other members of the family and the people in the community. This can be generally accomplished by proper isolation of the patient and control of his bodily discharges, the immunization of the people in the family and in the community and providing the sanitary means of disposal of body wastes.

Laboratory facilities should be provided for the physician so that blood cultures could be made to verify the diagnosis (too much confidence should not be placed in a Widal reaction since this reaction is found in a high percentage of persons who have been immunized or who have had the disease or are "carriers") and where stool cultures could be made for release purposes. At least two negative stool cultures should be obtained from all cases before they are released from supervision.

Immunity can be produced by the injection of typhoid vaccine. The usual procedure is to administer this vaccine in three doses at weekly intervals, the first dose consisting of one-half cc., the two subsequent doses of one cc. each in which each cc. contains one billion dead typhoid bacilli. All persons between the ages of three and fifty years living in a rural section where typhoid is prevalent or endemic should be inoculated and also all persons who are spending their vacations in such areas or where people are using an unsafe water supply. Children who weigh less than 50 pounds should only receive approximately one-half the dose of those above this weight limit. The immunity obtained in these inoculations varies in degrees and duration. It comes on gradually and becomes manifest about one week after the third injection. There is no laboratory procedure to determine the degree or the duration of the immunity produced as a result of these inoculations, but it is generally accepted that the immunity established will probably last from two to three years varying in duration, according to the amount of exposure. The giving of typhoid vaccine by mouth in accordance with the teaching of Besredka is still in the experimental stage and should not be used or advocated in mass immunizations.

If typhoid is ever to be completely eradicated it must be done through proper sanitary measures. Inoculation with the typhoid vaccine is a useful procedure for the control of typhoid temporarily, but proper sanitary disposal of bodily wastes will control the disease permanently and bring about its elimination along with other diseases of a similar nature. No greater proof could be had of the effectiveness of sanitation than that which has been produced by the Community Sanitation Program which has been carried on in West Virginia for the past five years. The typhoid morbidity and mortality rates here in the state up until the times this program started had a very high level regardless of our efforts to immunize the population against the disease, but since the beginning of this program the cases reported to this department have decreased from 1,265 in 1932 to 348 in 1937 and the mortality from this has had a similar decline.

DECLINE IN RURAL SECTIONS

The following table shows very clearly the way this disease has declined as the sanitation of the rural homes has increased:

Year	1932	1933	1934	1935	1936	1937
Typhoid cases	1,265	966	792	513	419	348
Privies built (accumulative)		735	46,940	86,380	142,029	179,827
Privies built by years		735	46,205	39,440	55,649	37,798

This program has been carried on at tremendous cost to the taxpayer, but when one studies the situation and takes into consideration that occording to surveys which have been made, each case of typhoid costs someone approximately $300 and each funeral over $200, and according to Louis I. Dublin the value of each life is approximately $1,200 we cannot help but conclude that the practical application of control measures regardless of their cost will be a paying proposition.

POSTGRADUATE EXTENSION COURSES IN PEDIATRICS*

By GEORGE M. LYON, M. D.
Huntington, West Virginia

POSTGRADUATE extension courses in pediatrics are courses given by clinical instructors, usually connected with a university, to physicians in their own localities or in centers relatively close to their homes. To such courses the term extramural instruction is often applied.

A report issued in 1927 by the Council on Medical Education and Hospitals of the American Medical Association reviewed what had been done in regard to postgraduate extension work in general medical education up to the time of the report, but it did not show how much of this work was devoted to pediatrics and to child health protection.[1] Another report on such work in general medical education was made by the secretary to the Harvard Medical School in 1934.[2]

The White House Conference on Child Health and Protection, 1930, summarized what had been done with regard to extension work in pediatrics up to 1930.[3] In 1936 the Committee on Medical Education, American Academy of Pediatrics, set out to ascertain and report upon what had been done since 1930. A questionnaire was sent during the fall of 1936 to each state chairman of the Academy and to the director of the bureau of child health in each state. On the whole, adequate replies were received, and a report was made by the subcommittee in July, 1937.

Under the helpful stimulation and guidance of the Children's Bureau, interest in postgraduate extension courses in pediatrics increased decidedly in many states during 1936, and it increased still more in 1937. The programs in several states showed a commendable activity, among the outstanding ones being those carried on in North Carolina, Virginia, West Virginia, Wisconsin, Florida, Alabama, Iowa, Mississippi, and Texas. The response from the physicians who have attended these courses indicates that the majority are generally appreciative of them, and when the courses are properly conducted they appear to be justified. It is true that some courses have not been successful from any standpoint. The conditions that work against the success of a course will be discussed later on.

PHYSICIANS' NEEDS DIFFER

In planning for extension courses we should bear in mind that physicians may be considered in three groups. Physicians living in large cities have ample opportunities for keeping up to date medically and for getting continued stimulation from medical meetings and from hospital and other professional contacts. Physicians living in remote rural districts and in some very small towns do not have such opportunities, and the program for extension courses that we are considering should be planned primarily for physicians in this group. The third group consists of physicians living in places between the two extremes cited; their opportunities and handicaps vary greatly. Many of the physicians who enroll in the extension courses come from small towns; they have fair clinical facilities in their communities, and they may be a very alert "go-getter" type. They tend to keep up their clinical contacts and they are likely to take intramural postgraduate refresher courses. They make a splendid membership; indeed, they may be some of the most appreciative of the physicians attending. As a general rule, however, they are not the physicians most hampered by geographic or economic conditions. Although these physicians should be welcome, the extension program should be aimed not so much to help them as to help their rural professional brothers.

*Read before the Conference of State Directors of Maternal and Child Health, Children's Bureau, Washington, D. C., Oct. 1, 1937.

Probably the vast majority of physicians in the small towns and rural areas do not have opportunities to keep abreast of the times, not only in pediatrics and child health protection, but in general medical matters as well.

When one realizes the great number of children cared for by the physicians in rural areas, one realizes the advisability of developing extension programs that will take to these relative shut-ins not only factual pediatric instruction, but also stimulation to carry on better in the important field of child health protection. The contribution of such programs is difficult to measure in units of effectiveness, yet almost to a man the clinical instructors who have been giving the courses report that when the work has been properly organized and administered, their efforts have been well received and the physicians have been truly appreciative and enthusiastic in regard to the opportunities offered by the courses and they have been faithful in attendance. The work has helped these physicians to provide better care for the infants and children in their charge.

EXTENSION TEACHING NOT NEW

We are apt to think that extension teaching is something new. Indeed it is not. As a technique in the educational field it was used as far back as 100 years ago in the form of teachers' institutes. In my own state of West Virginia, teachers' institutes were held prior to 1900, and in 1900 at such institutes my mother began the first series of lectures and demonstrations on methods of primary instruction as a specialized field. The institutes were then generally held on a county-wide basis. I have had the pleasure of conducting postgraduate pediatric courses in many of the same places where my mother did her institute work 25 to 35 years ago. I find, just as she did, that there are decidedly worthwhile people in these hills; that they can be benefited by methods that are practical. I may say also that in planning extension courses we should pay more attention to educational methodology, for extension education has a well developed technique. I am frank to confess that what success I have had in these courses has come, not because of what I learned in medical school, but rather because, being familiar with the methods of extension teaching used by school teachers, I have been able to adapt them to my pediatric courses.

EFFECTIVENESS NOT OVERSTATED

As most of the instructors participating in this type of program do so at a considerable sacrifice personally, it is unlikely they will overstate the effectiveness of their work or the value of the program in order to gain a new and broader field of activity. It is apparent from the reports of such instructors that it is not just the factual instruction in regard to clinical pediatric services that brings about the effectiveness of the program but the assistance given in the stimulation and development of better attitudes and practices in regard to child health protection. This is a part of the program that should always be considered in the organization and development of extension courses and indeed a part that may be the major contribution to the program.

Although it is realized that some postgraduate instruction in pediatrics is available through local non-teaching hospitals or centers, through certain medical societies, and, at times, through foundations, these activities are not being considered in this paper.

In the extramural type of extension courses, we have seen state medical societies take the lead in the development of the local state program. North Carolina was probably one of the first. Prior to 1927, Wisconsin, Colorado, Ohio, Pennsylvania, Michigan and New York had worked out plans, each somewhat different from the others. In none did pediatrics occupy a major part. For the general practitioner pediatrics should, with general medicine and obstetrics, comprise most of the activity. The Commonwealth Fund assisted materially in the development of an extramural extension program in obstetrics in Virginia. This was patterned after the North Carolina plan, with certain modifications. Mr.

George B. Zehmer, Director of the Division of Extension, University of Virginia, and Associate Professor of Education, has had much to do with the sound administrative procedure developed in Virginia.

EXTRAMURAL INSTRUCTION

The United States Children's Bureau has for some time provided extramural instruction in obstetrics and more recently has entered the pediatric field. During 1936, under the Social Security Act, the Children's Bureau was responsible for promoting, through state departments of health and state medical societies, wider participation in such programs in pediatrics and obstetrics. In 1937 the program was extended. In some states the instruction has been given in pediatrics only, in others in obstetrics only; in some states the programs have been combined.

In Georgia there has been an effective attempt to provide postgraduate pediatric instruction for Negro physicians in an urban medical center, but extramural courses have not seemed to be so successful. In Mississippi and Alabama a very capable physician, Dr. Walter H. Maddux, employed full time by the Children's Bureau, has been conducting extramural instruction in pediatrics and obstetrics for Negro physicians, and doing it exceedingly well.

In Virginia, Alabama, Maryland, Tennessee, and in several other states, one or more full-time clinical instructors in obstetrics or pediatrics are on the staff of the state department of child hygiene.

There are several types of extramural programs. Most of these are modifications of the North Carolina plan, under which the physician has a circuit of three to six towns which he visits weekly for three to five weeks, spending one to two days giving instruction in each locality. Under some plans an obstetrician and a pediatrician go together; this has been done in Wisconsin and Florida. Under other plans only a pediatrician goes, as in Virginia, West Virginia, and Alabama. As a general rule the clinical instructor gives a formal lecture or lectures or holds a clinic at each place. The "build-up" for the program and the preliminary administrative activities are carried on (1) by a representative of the state medical society, or (2) by a representative of the division of maternal and child health of the state department of health, or (3) as in Virginia, by a representative of the division of extension of the state university. This circuit type of program should, for convenience sake, continue to be called the North Carolina plan or the circuit plan.

Under another type of program, called the residence plan, the clinical instructor stays in a locality for one to two weeks and not only gives formal lectures, but also holds clinics and round table discussions and spends his out-of-class hours with the physicians in their offices, their patients' homes, or their own homes, giving them instruction. This plan offers much in the way of individualized assistance, which, for effective carry-over, is definitely superior to that offered by the other plan. Appropriate attitudes in child health and protection can best be developed in this way. This method was first employed in Virginia and has since been employed in Alabama, West Virginia, and several other states.

DIFFERENT PLANS NEEDED

It is evident from experience that no single plan is sure to be effective in every locality. Where physicians are forced to come 40 to 100 miles to attend the course, the circuit plan undoubtedly offers the greater opportunity. There are situations, however, which make the residence plan more effective. Some of the clinical instructors who have tried both plans feel they have done their best work when staying in residence from one to two weeks. This type of program is taxing on the clinical instructor because he is "on the go" pretty much day and night. But it does put him in much more intimate contact with the physicians enrolled in the course, and in a rural community with 10 to 20 physicians enrolled it has seemed to offer the best opportunity for aiding the physicians to attain the objectives of the program. It is

imperative that the program be adapted to local characteristics within the community or district to be served. In many states the physicians are so scattered that the circuit type of course is not at all practical. It will be a few years before we have sufficient experience to enable us to know what is the most appropriate program to be recommended to a specific community. There is a feeling, however, among some of the instructors who have had extensive experience in this work that the small intimate group under a residence program offers a better opportunity for effective results than the larger scattered group from a larger area under the circuit plan. Doctor Plass told me last July in discussing this phase of the work that Doctor McCord had for some time held this view. I think Doctor Plass saw the need for this type of program in West Virginia this summer. The expense of the small intimate resident group plan naturally is great—at times excessive. However, my own feeling is that in the more remote rural districts the residence plan is probably the only plan that will work. Perhaps employment of full-time pediatric instructors will, in time, solve this problem. The circuit plan certainly fails to solve it. Most of us admit that the effective teaching we had in our medical training resulted from our close contact with older physicians as clinical clerks and as interns in our hospital residencies rather than from our formal class work. It is here that the optimal opportunity lies for the teaching staff, including the chief resident, to aid the young medical man in the development of attitudes and practices which later in his medical career make for the best in his medical ability. I believe many of our more recent failures in extension work, just as those of the early 1920's, have been caused by indifference on the part of the program to this phase of instructional activity.

DATA AVAILABLE

The Committee on Medical Education of the American Academy of Pediatrics has prepared data on all types of programs and the committee will be glad to supply information at any time to any clinical instructor or state director who desires information in regard to how the programs have been developed and what results have been obtained.

TEACHER REQUIREMENTS

In every instance it is important to consider the type of individual to be selected to do this intramural teaching. It is not necessary that the instructor be a person of high technical ability. Preferably somebody should be chosen who has a flair for teaching and an interest in it, especially for teaching in the informal and intimate manner that will appeal to the physician we desire to have enrolled. As mentioned before, the type of physicians attending will vary somewhat, depending on their proximity to good medical centers, geographic locality, and general economic status. Some of these physicians in their medical training received instruction that today would be considered quite inadequate. For them the rapid-fire, high-pressure clinical program which seems to be so popular with the urban physician is a complete failure and they return no more after one scorching exposure. They are not favorably influenced by these exhibitions of superactivity; indeed, they are confused by them. They must be appealed to in a relatively simple, direct, everyday manner, and the instruction must be along the lines that they may be expected to carry on away from adequate laboratory or hospital facilities. It is not proper that instructors attempt to instruct these physicians in regard to clinical and laboratory procedures which are beyond the possibility of attainment in the community in which they practice, and most of these physicians have little opportunity for anything beyond the most simple laboratory procedures. Fortunately, very good work in pediatrics and particularly in child health protection can be done without elaborate facilities.

It has been said that these physicians as a group tend not to be interested in matters of child health protection. My own experience has been quite to the contrary. In Virginia in 1934 and 1935 and in West Virginia in

1936 and 1937, I found that these physicians were indeed more interested in problems of growth and development of children, of simplification of infant feeding, and of proper immunization procedures than in pure clinical pediatrics. At this point it is well to mention one of the common errors that was made early in the consideration of such extension programs. This is the idea that one must have a considerable amount of clinical material at hand upon which to base instruction for these extension courses. The speed with which one is forced to work in these clinics requires a more rapid method than that of carefully presenting clinical cases, and then besides, most of these physicians are working daily in these fields in which they have shown special interest; namely, growth and development, infant feeding, and immunization procedures. These do not require clinical material as a basis of instruction.

CLINICAL MATERIAL

The judicious use of clinical material, properly selected and presented, may make an effective procedure at times and its value is not to be lost sight of, but the success of the course is not dependent thereon. Indeed, such things as mimeographed resumes of illustrative cases and charts showing basic facts with regard to growth and development, infant mortality, and so forth, may be used effectively. Then there are copies of the actual instructions given to parents in the management of specific cases of illness and of instructions as to regulation of hygiene, diet, and so forth, which may be grouped under what the elementary school teacher would call "illustrative material." These invariably make an effective procedure for the physicians of the type generally enrolled. They are of more lasting instructional value than is the presentation of clinical cases, except very occasionally and under unusual circumstances.

Where possible the clinician should present intelligently a description of medical participation in public health problems, in medical relief problems, and in school health problems. This should not be a part of the formal lecture period but should be an after-hour added attraction.

It has seemed advisable in most of the courses that have been reported upon to supply mimeographed outlines of the formal lectures and such other mimeographed material as may aid the clinical instructor in attaining his objectives. Lantern slides and motion pictures are helpful, but according to several reports on this subject the physicians decidedly prefer material they may take away with them. Motion pictures make instruction easy but are better shown as an added attraction at "after-hour" periods. The United States Children's Bureau pamphlets are available to all individuals requesting them, and they should be exhibited and the advisability of their use by physicians stressed. Much of the popular material that is written in regard to growth and development and particularly in regard to mental hygiene should be warned against. Indeed, "debunking" of certain popular literature, extreme medical views, and so forth, should be an important part of the program. It is important to select topics for instruction that are suited to the physicians enrolled in the course.

THE FIRST DAY

It is well on the first day of the course to present the physicians with a check list of (1) diagnostic procedures, and (2) therapeutic procedures. The physicians are asked to indicate by check marks the procedures that they would like to have demonstrated. When an item is checked by the majority of the class, arrangements should be made for an after-hour demonstration of the procedure before the group requesting it. For items less frequently checked, it is advisable for the clinical instructor to arrange to demonstrate the procedures to individuals or to smaller groups. This adds greatly to the practical interest the physicians have in the courses and is of material aid in stimulating interest and achieving instructional objectives. The physicians at the first meeting realize that the in-

structor is trying to make the course attractive and interesting to them individually.

It has been amazing to see the interest that has been taken in many places in matters of mental health. When we realize how inadequate medical school instruction was 10 to 25 years ago in so many of the things that we pediatricians look upon as simple everyday fundamentals of our pediatric practice, it is not difficult to realize how handicapped may be the older, yet earnest physician in a rural community who is denied, by economic conditions beyond his control, the opportunity of going to intramural postgraduate centers for appropriate instruction. Many of the things in which he is interested, while described adequately in pediatric texts, are not so easily translatable into specific activity. It is hard to mold judgment and attitudes from texts. It is, indeed, difficult for a rural physician to learn how to do a Schick test from a textbook; and yet there are many other practices, particularly those involving judgment, wherein he is even more under a handicap. This is especially true in matters of mental health. Extramural courses offer these physicians an opportunity to become familiar with things mostly simple in nature, which he can learn easily, and yet which he has not been able to become familiar with previously. The complicated infant-feeding techniques of the past have so many times confused even the intelligent physician who is removed from pediatric guidance that he wants to throw up his hands at the thought of attempting to feed an infant scientifically. His only aid is apt to be the instructions supplied him by the commercial infant-feeding concern or its personal representative, the detail man. The excellent assistance and guidance available to him from the Children's Bureau pamphlets on infant care may never come to his notice. Less than one-fifth of the physicians attending my courses have known that this material existed, let alone that it was available to them and to parents for the asking.

It has been suggested that the extension postgraduate courses be called postgraduate clinical conferences in an effort to do away with the idea that they are an attempt to educate the local physician. This suggestion may have more value than is at first apparent.

It seems to be of primary importance that this extension activity should be carried on under the sponsorship of the state medical society and that special pediatric or obstetric groups within the state should not take the lead therein. Otherwise, jealousies and prejudices between societies may obstruct the effectiveness of the programs.

WEST VIRGINIA METHOD

In West Virginia a practical solution has been worked out with the state medical society. The state committee on maternal welfare includes a member from each councillor district. This committee, working with the director of the bureau of child hygiene of the State Department of Health, has charge of the development of the program of postgraduate instruction in obstetrics. A similar committee on child welfare has a member from each councillor district, and, with the director of the bureau of child hygiene, has charge of the development of postgraduate work in pediatric instruction. An executive committee representing both these committees and including the director of the bureau of child hygiene has charge of the actual administration of the program. As in other forms of medical participation, leadership is needed and is usually lacking. Although members of the Academy of Pediatrics are represented on the committee on child welfare, they serve only as active members of their state medical society and not as representatives of the Academy. No better plan of bringing together the organized medical profession and its relationship to these extension courses has as yet been presented. It may fail where medical leadership is lacking in each district.

The Committee on Clinical Education as developed in Virginia is the result of an effective arrangement with the state medical society, the State Department of Health, and the Division of Extension of the University

of Virginia. Particularly effective is this arrangement where the Division of Extension of the University of Virginia (a division not connected with the department of medicine) provides the administrative activity just as it does for extension work in agriculture or home economics.

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PROFESSIONAL RELATIONSHIP BETWEEN PHYSICIAN AND PHARMACIST*

By J. LESTER HAYMAN**
Morgantown, West Virginia

As a pharmacist I am particularly happy to meet with you this evening, since, in my opinion, there has not been as close a professional relationship between the physician and the pharmacist as there should be. I am not familiar with the reasons as to why there was a break some years ago in the exchange of fraternal delegates of our respective state organizations, but I believe it would be of mutual benefit to restore this friendly gesture.

One would hardly question the wisdom of encouraging a close relationship between the intimately related professions of medicine and pharmacy, which according to early history had a common beginning in being practiced by the same individual. Early in this ancient or medieval history there was a cleavage in the interests of the "medicine men" as to their desire in devoting their time and energy to the collection of roots, barks and herbs which they subsequently concocted into medicinals—pharmacy, if you will; and, to those whose primary interest was in the administration of the medicinals to the ill and indisposed—medicine. This divergence of interest developed into the closely related and interdependent professions of medicine and pharmacy, which worked harmoniously together in the common interest of improving the health conditions of the human race.

From the earliest times the medical profession has had to contend with the practice of home medication but until the age of industrialization and mass concentration of wealth and population it did not present itself as a serious problem to the professions under consideration. The development of the mass production of drugs and pharmaceuticals has many desirable features, and has led to the introduction of many valuable therapeutic agents which would have been otherwise impossible. There have been also the development of many undesirable practices which in my opinion have been detrimental to the best interests of the professions of medicine and pharmacy, and without doubt the public has suffered as well. Some two or three decades ago there began the mass production of medicinals known as "patent and proprietary" medicines which because of the rapid progress in communication, concentration of population and increasing modes of advertising, enjoyed ready acceptance by the masses and to a large extent replaced the home collection and preparation of medicaments. The industry grew and has continued to grow rapidly.

It was during this rapid development that we began to have enacted upon our state statute books the laws and regulations governing

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**Director of the College of Pharmacy, West Virginia University.

the distribution and sale of drugs and poisons. Unfortunately the wishes of the drug manufacturers prevailed in the passage of these acts in that "patent and proprietary medicines and home remedies" were exempted as to regulations governing their sale and distribution. In this respect I am of the opinion that the public has been the victim of selfish, improperly drafted legislation which continues to remain upon our statute books, obsolete and inadequate, but difficult to amend and modernize in the interest of public protection for reasons which require no elucidation. I firmly believe that the advertising, sale and the use of "patent and proprietary medicines" as practiced today is not in the interest of improving health conditions of the general public, and I shall go even further, I am of the opinion that in many instances their continued use by certain portions of the lay public, without proper supervision and guidance, shortens the span of life of untold numbers of individuals, regardless of the existing or proposed food and drug legislation. This is not intended to imply that the medicinals themselves are poisonous, or that they in themselves are particularly harmful; in fact, in the larger number of instances they may be beneficial if properly and correctly used, but a moment's reflection should convince any intelligent person that self-diagnosis and self-medication, in many instances only alleviate distressing symptoms of serious disorders or forerunners of such conditions, which if not promptly and properly tended often come to the attention of the physician too late to rectify. I was astounded, as no doubt you will be, to learn that 73 per cent of all of the cost of drugs is expended for medicinals for home treatment. Is this a challenge to medicine and pharmacy?

PRESCRIPTION WRITING

Unfortunately, in my opinion, during this rapid increase in the manufacture and use of these preparations the medical schools decreased to a minimum the teaching of prescription writing. The natural result was that many physicians became indifferent about writing prescriptions, and a certain percentage being desirous of a greater knowledge contacted the pharmacist for this information. A recent statement by a prominent New Jersey physician is interesting. "The medical schools give students only two per cent of pharmacology and prescription writing, while the responsibility of this item of medicine to the laity is 20 per cent. Therefore, a vacuum of 18 per cent exists, and it is within this 18 per cent that clever systems of advertising prey upon the public, exploiting both pharmacy and medicine with little or no consideration of either. After all, the physicians' greatest and most powerful weapon against disease is a broad knowledge of therapeutics."

The pharmacist has been ridiculed by the physician and the public for placing the prescription department in an inconspicuous portion of the store, for which many explanations have been given, but I wonder if some of the responsibility does not belong to the physicians. Without prescriptions to fill, without a profession to practice, some other means must be provided for a livelihood.

PATENT AND PROPRIETARY MEDICINES

In discussing the terms "patent and proprietary" medicines would it not be well to spend a minute or two in making clear the meaning of the expression? Originally the two terms were tended to designate two types of preparations. In earlier years it was possible to patent a formula for preparing a mixture of drugs, a practice long since discontinued. The term as used at present refers to a medicinal in which the ingredients are secret in contrast to the materials which are patentable. To obtain a patent the secrets must be divulged. The proprietary preparation differed from the former in that it contained a pretended or the real formula upon the label, but the name of the preparation was copyrighted. Today the two terms are used and considered to be synonymous and from the legal standpoint the following definition has become classic:

"It is a matter of common knowledge that what are called 'patent' or 'proprietary' medi-

cines are prepared for immediate use by the public, put up in packages or bottles, labeled with the name and accompanied by wrappers containing directions for their use, and the conditions for which they are specifics. In this condition they are distributed over the country in large quantities and sold to consumers in original packages, just as they are purchased by the dealer, without any other or further preparation or compounding."

PROTECTING THE PUBLIC

Assuming that self-diagnosis and self-medication are not in the interest of the protection of the health of the general public, there are methods of assuring the public at least partial protection, but the process is long, tedious and most difficult. Those interesting themselves in the problem are immediately accused of purely selfish interests. As previously indicated, at the time of the passage of legislation regulating the sale of poisons and medicinals, the pharmacists were not properly organized while the manufacturers of patent and proprietary medicines were able to exert powerful influence with the legislature to the end that the sale of such medicinals was assured in grocery stores, filling stations and outlets of a similar nature. Practically all attempts to modify these conditions have met with complete failure. The government, both state and national, should prohibit the sale and distribution of medicinals, other than those filled upon the prescription of a physician or other properly qualified person, unless the label contains a true statement of the contents, or at least the potent ingredients and the quantity of each. Such preparations should then be limited as to sale to the pharmacist of a properly registered drug store or pharmacy. May I particularly stress the last statement—to the pharmacist of the drug store, who by training and experience can and should be able to give valuable information concerning the preparation, being informed of its medicinal contents. By limiting the sale to the pharmacist within the drug store an obligation and a responsibility would be placed upon him to inform the customer that the preparation contained potent medicinals and should be used only in accordance with the directions given. In addition, the manufacturers of all medicinal preparations should be licensed by the Federal government, such license to be issued only when the medicinals are prepared under proper supervision, and after such have been tested physiologically to determine their potency and safety. Such a procedure would in my opinion be entirely justified, and it would materially lessen improper self-medication, and certainly prevent the recurrence of such incidents as the recent wholesale deaths occasioned by the mislabeled "Elixir of Sulfanilamide."

SALE OF POTENT DRUGS

The State Boards of Pharmacy should be given the legal authority to restrict the sale of potent drugs and chemicals to physicians prescriptions when and if such is recommended by competent members of the two professions and when such procedure is recommended by the proper officials of the respective state organizations of each profession. An instance of the necessity of such legislation is in the chemical now commonly known as "sulfanilamide." It is a well recognized fact that this chemical should only be given or taken under the careful supervision of the physician, and in quantities to last a relatively short time. However urgent this need may be, there is no provision for limiting its sale. Nothing to my mind shows more the laxity of our laws governing drugs and poisons than the fact that John Doe, with a four-grade education or less, could obtain prepared tablets of this chemical, sulfanilamide, package it in accordance with the definition of a patent medicine previously given, using his basement or cowbarn as his packaging plant and then distribute the same to as many beer joints, pool rooms, and other establishments as he could induce to stock it, where it could be sold without the slightest conception of its medicinal qualities or possible dangers of improper usage. This is of course an exaggerated, but nevertheless a true picture of

the laxity of the laws governing the sale of drugs and poisons.

I am fully aware of the complaint of the medical profession in regard to counter prescribing of the pharmacist and agree that the complaint is justified. I am also fully cognizant of the fact that many physicians do their own dispensing. May I again quote the New Jersey physician who is also a pharmacist? "When all physicians confine their energies to diagnosis and cease dispensing medicines to their patients, and when every pharmacist is content to confine his efforts to compounding and leave prescribing to physicians, well, just about that time Gabriel will toot his horn, and each of us will be sitting on a pink-capped cloud, playing a harp. The fact remains, however, that the physician is no more qualified to engage in intelligent dispensing than the pharmacist is qualified to engage in intelligent counter prescribing, and in each case there is an assumption of responsibility for which neither is fitted." This attitude will not be shared by all, nor can the question be settled in our own time to our complete satisfaction; however, much progress can be attained by an understanding of one another's problems.

SAMPLES

Many physicians, I feel, unintentionally and unknowingly encourage the sale over the counter of proprietary or semi-proprietary preparations. Frequently the physician provides the patient with a sample medicinal left by the manufacturer's detail man when indications present themselves for such a preparation. Usually the physician does not take the time to obscure the identity of the preparation with the result that upon the next occasion the patient has what he thinks the same or a similar condition, he visits the drug store instead of consulting the physician, and calls for the medicinal by name and the pharmacist has no alternative other than to supply the material requested. Should the preparation become so popular with the physicians that it is frequently dispensed the manufacturer places it upon the market in an attractive carton, and the cut-rate drug store begins the advertising at 79 cents, 67 cents, 49 cents, or "what will you pay" for a dollar item. This useful preparation is now classed as a patent medicine and according to law can be sold by anyone anywhere.

SIMILAR PREPARATIONS

A very perplexing problem which confronts both the physician and the pharmacist is the practice of the manufacturers copying one another's preparations and placing them upon the market differing mostly in name only. Such practice is literally cluttering the market with an ever increasing multiplicity of similar preparations. Such a condition makes it impossible for the physician to remember the preparations, and it is equally impossible for the pharmacist to stock them all.

When "aspirin" came upon the market the manufacturer obtained a patent on acetylsalicylic acid and the chemical was popularized under the name of aspirin. For seventeen years the manufacturer enjoyed a monopoly upon aspirin, and quite properly so. However, at that time they had not learned the "tricks of the trade" and failed to copyright the name of "aspirin" for this chemical. Thus, for this "lack of foresight" at the end of the 17 year period anyone could manufacture acetlysalicylic acid and call it aspirin. Today, they both patent the process and copyright the name, if possible. In fact, in many instances copyrighted names are obtained for ordinary chemicals leading to the necessity of the pharmacist of stocking numerous brands of the same and identical material. This multiplicity of names for the same or nearly identical preparation is confusing to both physician and pharmacist. To illustrate, the following are registered trademarked names for digitalis preparations:

Digical-dalis, digicardium, digidin, digifol, digifortis, digiglusin, digiloid, digilutea, diginfuse, digipit, digipit No. 2, digipura, digiquin, digirex, digismith, digitalex, digitaligen, digitaline, digitan, digitex, digitol, digitone, digitora and digitos.

Would one suspect that "naferon" is neutral iron and ammonium citrate, or that mandamon is ammonium mandelate? Yet, when the physician wishes tablets of mandamon the pharmacist is duty bound to supply Squibb's ammonium mandelate tablets, and although he may possess a tablet of chemically pure ammonium mandelate in his stock he would be considered a substituter if he were to use this material when the physician specifically prescribed tablets of mandamon.

In many instances the copyrighting of the name of the material materially increases the cost, which fact the physician should bear well in mind in prescribing and particularly so when administering to those with limited incomes, as demonstrated by the following:

Argyrol	$1.50 per oz.	Mild silver protein	$ .52 per oz.
Aristol	1.80 per oz.	Thymol iodide	.30 per oz.
Aspirin	.75 per oz.	Acetylsalicylic acid	.05 per oz.
Atophan (powder)	2.75 per oz.	Cinchophen (powder)	.39 per oz.
Atophan (7½ gr. Tab.)	4.00 per 100	Cinchophen (7½ gr. Tab.)	.63 per 100
Cystogen	1.00 per oz.	Methenamine	.13 per oz.
Diuretin	1.85 per oz.	Theobromine sodiosalicylate	.29 per oz.
Duotol	1.07 per oz.	Guaiacol carbonate	.29 per oz.
Luminal (½ gr. Tab.)	1.25 per 100	Phenolbarbital (½ gr. Tab.)	.20 per 100
Luminal (powder)	6.90 per oz.	Phenolbarbital (powder)	.62 per oz.
Luminal (elixir)	2.67 per pt.	Phenolbarbital (elixir)	.51 per pt.
Medinal	3.00 per oz.	Sodium barbital	.65 per oz.
Phenacetin	.63 per oz.	Acetophenetidin	.13 per oz.
Protargol	1.25 per oz.	Strong silver protein	.51 per oz.
Pyramidon (powder)	.82 per oz.	Aminopyrine (powder)	.47 per oz.
Pyramidon (elixir)	3.00 per pt.	Aminopyrine (elixir)	.80 per pt.
Stypticin	90.00 per oz.	Cotarnine chloride	9.81 per oz.
Theocin	5.64 per oz.	Theophyllin	1.30 per oz.
Tolysin	2.00 per oz.	Neocinchophen	1.04 per oz.
Veronal	3.00 per oz.	Barbital	.59 per oz.

The practice of some physicians in telling their patients what the price of a prescription will be is quite annoying and embarrassing to pharmacists. In most instances the pharmacist provides medicinals to the physician at actual cost or with a very small margin of profit. Bearing in mind that the proper filling of a prescription carries with it the time of the pharmacist in compiling it, the use of technical knowledge, as well as responsibility and liability, it is unfair and unjust for a physician to indicate a price which may possibly only cover the cost of the materials therein and thus it causes a great deal of embarrassment when the patient either asks the price of a prescription and is informed that it is more than that indicated by the physician, or upon having the same filled, is informed when getting the medicine that it is more than the patient expected, having been informed of a certain price by the physician. The physician no more exercises his rights in informing patients as to the cost of a prescription than does the pharmacist in informing patients of the cost of physicians' office fees or as to the cost the physician may charge for a certain operation.

FEDERAL AND STATE LAWS

If I may, I should like to mention several points in regard to Federal or State laws of interest to both the physician and the pharmacist. In regard to the Harrison Narcotic Law, may I particularly point out that the physician is wholly liable for correctly making out this class of prescriptions, and should a pharmacist fill such prescription which is improperly prepared, then both the physician and the pharmacist have violated the law and are subject to the penalties thereof. Quite frequently physicians telephone narcotic prescriptions to the pharmacist. In accordance with this law there is only one instance in which a narcotic may be telephoned—that is in the case of an emergency. Even then the pharmacist may only legally fill such an order provided he receives a properly executed prescription before the medicine leaves the agents of the pharmacist. I may also point out that on October 1 last, the Federal Narcotic Cannabis Act became effective which to all intents and purposes will eliminate this drug from medicinal use. The government under regulation does provide licenses for the prescribing and dispensing of this drug, but the physician must obtain a separate license costing one dollar per year in order to write any prescription containing cannabis or any of its ingredients. The prescription is made out in the same manner as that of a Harrison narcotic prescription. The pharma-

cist must also obtain a license in order to sell such prescription due to the fact that very few physicians have availed themselves of this license. Most pharmacists have felt it inadvisable to register under this act and such a condition practically eliminates the drug from medicinal use. In addition the prohibitive tax of one dollar per ounce for every time the drug changes hands also is a factor in its being prescribed, since to reach the pharmacist, there must be three transfers making a Federal tax of three dollars per ounce in addition to the cost of the medicinal.

In regard to our state barbiturate act, may I point out that barbital, under any name whatsoever, would include veronal. It may only be sold or dispensed upon a physician's prescription. Other barbiturates or compounds may only be sold or dispensed by registered pharmacists. However the State Board of Pharmacy is provided with authority to place other barbiturates upon the prescription list when evidence is sufficient to justify this act, and may I suggest that when certain drugs of this nature become generally abused that said information be sent to the State Board of Pharmacy for appropriate action.

In closing may I thank you for this opportunity of appearing before you, which I assure you I have enjoyed very much. I trust that it shall be the beginning of a more cordial relationship between the professions of pharmacy and medicine and I am quite sure that the problems which perplex us may be more readily solved when we more fully understand and appreciate the problems that are involved.

TERATOMA OF THE TESTIS
(Case Report)

By G. G. IRWIN, M. D.
Charleston, West Virginia

MARCH 22, 1937, A. McK., white, single, 23, coal loader by occupation, presented himself in the outpatient department of the Charleston General Hospital, complaining of swelling of the right testicle. He stated that the swelling had been present for about a month. The patient's complaint was of pain in the scrotum and an occasional dull aching pain in the small of the back. He had been able to work just as well as before the tumor was noted and there had been no loss of libido and no loss of weight.

Physical examination showed a pasty, asthenic looking male who did not appear acutely ill. Outside the genital tract, system examination gave normal findings. The blood pressure was 150/92. There were no abdominal masses. In the scrotal sac there was a large, hard, smooth mass, about the size of an orange. The spermatic cord was normal. The tumor did not transilluminate. There was no superficial inguinal adenopathy. The prostate on rectal examination appeared normal.

The patient was admitted with a tentative diagnosis of teratoma of the testis. He was operated upon two days later and the tumor and the testicle were removed. The pathologist reported in part: "We are dealing with a so-called teratoid of the testicle which shows a relatively high maturity of its constituents. There is no definite indication of malignant changes within these constituents in the sections seen. In their later course only a few of these cases stay benign. Many of them produce metastasis of a pure sarcomatous or carcinomatous type. In a few cases the metastases show teratoma also. Diagnosis: Embryonal teratoma of the testicle without definite malignant changes of a single constituent."

The Friedman test, postoperatively, was reported negative. The patient's convales-

cence was uneventful and he was discharged 10 days postoperatively after having been given deep x-ray over the scrotal area, abdomen, chest and left cervical areas.

He was readmitted March 18, 1938. At this time he presented a mass in his upper right abdomen. This mass was about the size of a lemon, hard, did not move at respiration and seemingly was fixed close to the spinal cord. The impression was a metastatic involvement of the lumbar glands. Sedimentation rate showed a diagonal curve. Friedman test for gonadotropic substance was negative. In differential diagnosis examination of the right kidney showed a markedly diminished function, dilatation of the kidney pelvis and the upper ureter. Close observation showed that there was a distortion of the psoas shadow tangent to the lower portion of the dilated ureter. The assumption was that this distortion is due to enlarged glands which at this point interfere with ureteral drainage. The patient received a course of deep x-ray therapy with no noticeable benefit.

DISCUSSION

Tumors of the testes are relatively rare. The malignant tumors are usually of the mixed teratoid variety or pure carcinoma, (seminoma). At times, as in the present instance, the mixed tumors may show nonmalignant adult tissue but are always potentially malignant. Occurrence ranges throughout the entire span of male life, being, however, greatest in the early adult decades. The clinical course is usually quite rapid, metastases occurring early into the lymphatic and venous systems. The Friedman and Ascheim-Zondek tests for urine hormones have some diagnostic and prognostic value. When quantitative tests are made diminution or disappearance of the hormones denotes an increasingly better prognosis. However, there is a certain natural variation in hormone value which must be taken into account. Furthermore, some cases as exemplified by the case here presented show no increase in hormone value and are still malignant. A rising hormone value is of bad prognostic significance. There is still some difference of opinion as to the proper treatment of these cases. The best opinion at the present time inclines to the belief that the attempt to dissect out lumbar glands is futile and that surgery is best limited to simple castration with high amputation of the testicle and associated structures. Deep x-ray therapy is given after operation. Differential diagnosis embraces consideration of orchitis, epididymitis, hydrocele, hematocele and gumma. A history of antecedent injury may be common to all these conditions. Careful palpation of the scrotal contents will serve to distinguish the swelling of epididymitis from that which occurs in testicular tumor. Malignancy of the epididymis is exceedingly rare. A hydrocele may mask a tumor of the testicle and careful palpation of the testicle should always be made after the evacuation of a hydrocele. Hematocele gives a soft, doughy sensation very often and does not transilluminate. Every testicular tumor should primarily be regarded as either syphilitic or malignant. In case of doubt, one or two weeks' vigorous antiluetic treatment should cause an appreciable reduction in the size of a gummatous testicle. A rapidly growing tumor starting at the hilus of the testicle and resulting in a rather rapid increase in the size and consistency of the testicle should give rise to the suspicion of malignancy. These tumors are extremely malignant and prompt diagnosis and therapy are indicated. They can be expected to occur at any time of life.

NEW SHOES

Unfortunately, a good many devotees of the wide open spaces break in both shoes and feet on their vacation trail, as pointed out by Dr. Allen S. Johnson in his article "First Aid on the Trail" in the July issue of *Hygeia*.

At the first sensation of pain the shoe and sock should be removed to be sure that a pebble or a wrinkle is not responsible. If the skin is as yet unblistered the area may be protected by the direct application of a piece of adhesive tape.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

The courage of tuberculosis workers ebbs from time to time because progress is so fitful and slow. A popular writer bemoans the great lag between what we, as a people, know and what we actually apply in the phrase, "the frustration of science." But that our efforts to improve conditions do ultimately yield fruit is attested by bits of evidence that come to light from time to time. Such evidence is furnished by a study reported by one of England's noted tuberculosis specialists, Dr. G. Lissant Cox. Excerpts of his article follow:

DURATION OF LIFE OF TUBERCULOSIS PATIENTS

For many years efforts have been made in Lancashire (England) to educate the public to seek medical advice as soon as certain symptoms of tuberculosis manifest themselves. In an attempt to assess the value of such education the author, who is the Tuberculosis Officer of Lancashire, has measured the period of illness before the patient was examined for the first time by the Tuberculosis Officer and the duration of his life after that time. The period of illness before the Tuberculosis Officer's examination was sub-divided to show (a) how long the patient waited before consulting his medical attendant and (b) how long he remained under his care before being referred to the Tuberculosis Officer. Such measurements were made for two selected years, 1920 and 1935 and compared. More than 200 consecutive cases were included in each year's study.

The investigation was made only of patients who had died of tuberculosis, which limited the inquiry to the more advanced cases. To put the question of diagnosis beyond doubt, only cases with tubercle bacilli in the sputum were included. These restrictions naturally excluded the more hopeful types of cases. The conclusions reached were that:

1. The duration of illness, from the appearance of the first symptom to consultation with the Tuberculosis Officer, averaged 16.7 months for the 1920 group and 12.5 months for the 1935 group.

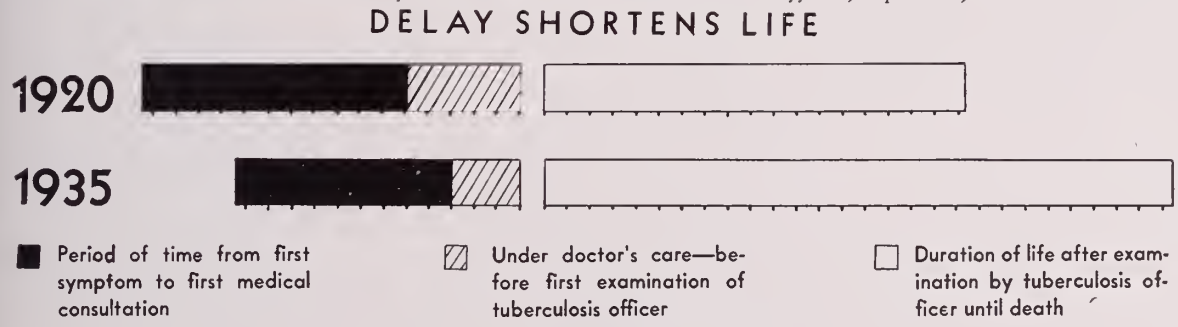
2. This reduction of 4.2 months' delay was due to (a) earlier consultation with the family doctor and (b) more prompt reference of the patient to the Tuberculosis Officer.

3. The 1935 group lived on an average of 9.1 months longer than the 1920 group after the initial examination by the Tuberculosis Officer.

4. The longer duration of life may be due to (a) examination of the patient in an earlier stage, (b) better living conditions, (c) improved methods of treatment. It is not possible, however, to assess the value of modern methods of treatment as the investigation deals only with patients who died, taking no account of patients who are still under supervision or who have recovered.

5. Efforts to encourage patients to seek treatment earlier has met with some success. The average delay was reduced by some 25 per cent.

Average Duration of Illness of Positive Sputum Patients, G. Lissant Cox, M.A., M.D. Cantab., The Medical Officer, April 16, 1938.



SLEEPING PILLS

Druggists in large cities say that sleeping pills now sell as fast as aspirin and laxatives, Lois Mattox Miller reveals in her article entitled "Dangerous Lullabies" in the July issue of *Hygeia.*

Americans must be finding it increasingly hard to get to sleep. Physicians report a steady increase in the number of cases of insomnia that pass through their offices. Other evidence to this fact is the testimony of druggists and the steady multiplication of brands offered for sale.

Because he doesn't sleep well, the victim turns to a "harmless" pill recommended by a friend. He sticks to his "sedatives," using larger and larger doses until some day he is rushed off to the emergency hospital.

President's Page

The 71st annual session just concluded at White Sulphur Springs has contributed a notable and interesting chapter to the history of the West Virginia Medical Association. Even after liberally discounting appearances and verbal expressions of approval the making of this history was both pleasant and profitable.

The attendance indicated by a registration approximating four hundred we believe may be interpreted as a stamp of approval both on the site and the date of this meeting. The differential in registration at this and the two immediately preceding meetings at Fairmont and Clarksburg respectively is likely due to the increased density of population in these two latter areas making it possible for a larger number of commuters to attend for a day or part of a day. The selection of the Greenbrier for next year's session seems to represent the choice of a majority of the attendants at the past session. Whether the Greenbrier should be our annual meeting place is still controversial and our remarks above have not been intended as an expression of opinion on this matter.

The scientific papers presented in the various sections as well as the general meetings both by our own members and the numerous distinguished guests from out the state were uniformly of a high order of merit, timely, interesting, and instructive. To our Scientific Committee our deepest gratitude. The entertainment features—to those who attended, mention is superfluous, and in one page we could not tell the rest of you what you missed.

One regrettable thing did occur. The highly interesting programs and unique opportunities for out-of-door diversions deprived our commercial exhibitors of their usual profitable patronage. Let us try to compensate them in the coming months by greater patronage.

The Association is to be congratulated on its choice of a president for 1939. Pledging him my whole hearted support I can wish for him nothing better than that he may receive that kindly, friendly cooperation which you have given me so graciously.

President.

West Virginia Medical Journal

P. O. Box 787
Public Library Building
CHARLESTON, WEST VIRGINIA

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THE WHITE SULPHUR MEETING

Once again the Association has marked up a successful convention. To those who attend our annual meetings regularly, each gathering seems better than the last. This was particularly true at White Sulphur Springs where the unanimity of medical purpose, combined with a brilliant scientific program and a setting unsurpassed in America, renewed once more the spirit of camaraderie and understanding which is so sorely needed by our profession in this unsettled era.

Our new president, who will take office next January first, is Dr. Ray Maxwell Bobbitt, Huntington. Few men in the state are better qualified by training and experience to succeed our present leader, Dr. Waddell, than Dr. Bobbitt. He served his apprenticeship in various official capacities with the very active Cabell County Medical Society. Following this he served two terms as councillor of the Association for the fourth district. He has served on many important committees for both the State Association and his own county medical society. During this long period of service to his profession, Dr. Bobbitt has become thoroughly familiar with the problems of organized medicine in West Virginia.

To Dr. Bobbitt we extend our heartiest congratulations and best wishes for a successful administration. To Dr. Waddell we express the gratitude of our Association members for a splendid convention and due recognition for his quiet and efficient leadership during the current year. With two such distinguished men in the service of organized medicine, we can all look toward the future with befitting confidence.

President-elect, Ray M. Bobbitt, M. D.

NATIONAL HEALTH CONFERENCE

As this is being written, the National Health Conference is under way in Washington. By the time this issue of the JOURNAL appears, we may have a forecast of what the medical profession is to expect from the federal government in the nature of governmental participation in medical practice.

The National Health Conference is sponsored by the Interdepartmental Committee to Coordinate Health and Welfare Activities of the Federal Government. The chairman of the Interdepartmental Committee is Miss Josephine Roche, who wrote the House of Delegates of the American Medical Association under date of June 14, 1938, that "No one formula or program can possibly be found adequate to meet the varied needs, but a composite of many efforts and plans . . .

can and must be found. We believe that by providing an opportunity for an interchange of views between representatives of the medical and other professions, of various agencies and of the general public, the National Health Conference will dissipate misunderstandings and work toward a meeting of minds on the beginning of a coordinated national health program."

In the above, we find two matters of the greatest importance to the medical profession. First is the admission, finally, by the federal government that "No one plan or formula" can be found to meet the varied needs of the entire country. That doctrine has been preached by the American Medical Association for many years. Second is the invitation to the duly constituted leaders of the organized medical profession to participate in the Washington conference. We are comforted to know that our leaders are now in attendance at the conference.

We attempt no predictions as to the outcome of the meeting in Washington but we do express the hope that the spirit of understanding so desired by Miss Roche will be a reality. If not, there will still be time to do our local swearing in our next issue.

We close these brief comments with the observation of our White Sulphur banquet speaker, Warren Roberts of Logan. Said Mr. Roberts of socialized medicine, "It might be a fine thing, but if I ever get acute appendicitis under that plan, I hope the chairman of the county executive committee is not out of town."

LICENSE RESTRICTIONS

Following up the action of the House of Delegates of the American Medical Association in San Francisco, the West Virginia Public Health Council is to be commended for its action in limiting medical licensure to native born citizens or those who have acquired full citizenship. This action was taken by the Public Health Council at its Elkins meeting on July 4. The resolution adopted by the Public Health Council provides that each native born citizen applying for a license to practice medicine in this State must furnish a copy of his birth certificate and that each foreign born applicant be required to submit a photostatic copy of his final naturalization papers.

The complete resolution follows:

"*Be it Resolved,* By the Public Health Council of West Virginia, that after July 31, 1938, license to practice medicine and surgery in the State of West Virginia will be limited to native born citizens of the United States and to those who have acquired full citizenship and that each native born citizen be required to submit with his application and as a part thereof, a copy of his birth certificate or other satisfactory documentary evidence of birth in the United States of America and that each foreign born applicant be required to submit with his application and as a part thereof a photostatic copy of his final naturalization papers."

TRIBUTE TO DR. FULTON

EDITOR'S NOTE: As a tribute to our late beloved leader, Dr. William S. Fulton, we publish herewith the remarks of Dr. D. A. MacGregor, Wheeling, before the House of Delegates at the White Sulphur Springs meeting on the evening of July 11, 1938.

Dr. Harden and Dr. Bernstein practiced medicine in partnership in Wellsburg for several years. Both names are on Dr. Henry's list of the missing. They died within a month of each other.

Dr. Fulton nearly always brought Dr. Harden to our annual meetings. They attended the last annual meeting together. They died within three days of each other. Fast friends, each knew the other was desperately ill, each sent a message of sympathy to the other. It seems a little hard for us to realize that a man so strong physically as Dr. Fulton seemed to be could drop out so suddenly and so unexpectedly. He was at work in the hospital when his first anginal seizure came. He was doing a surgical dressing with Dr. Bailey at the time. Dr. Sauder, who examined him immediately advised him that it seemed to be an anginal attack and that it

would be well for him to rest a while at the hospital. Dr. Fulton said: "I am feeling better now," and in a short time he drove from the hospital to the Clinic. When he arrived at the Clinic he was in a desperate condition with extreme anginal pain and he remarked to our nurse that he felt that the end had come. I happened to be there, she called me, we tried to give him first aid, and I tell you we were so nervous that it was extremely difficult to do so. The first hypodermic fell to the floor from the nurse's trembling fingers.

That leads me to say that he never was quite completely relieved of pain. He had an enormous amount of opiates in the course of the three days that he was with us there at the Clinic. At times he said the pain was relieved but he never said that it was completely gone. In fact, he indicated one area in the precordial region under which he felt the actual trouble was taking place. It wasn't much of a Clinic for the three days he was there. We turned it into a one-man hospital and we are all very, very glad that we had the opportunity to be with him so intimately during the last three days.

Dr. Sauder stayed with him almost continuously. It was hard to get him to consent to take a few hours' sleep occasionally. The rest of us took turns so that someone was always present to assist Dr. Sauder when he needed help.

In the afternoon of the third day after turning over he remarked to the nurse: "That pain was harder than any of the others," and a moment later, "I am going now." Within two minutes he died.

It is awfully hard for us to realize and I know it must be hard for the members here assembled to realize that that grand personality has passed out of our lives. Oftentimes at the Clinic we hear a jovial voice or a loud laugh such as he had and for a moment we think maybe he is coming in. I think it is a kindly thing that we do not feel the permanence—the finality—of death when it first comes.

So far as the Clinic organization and its work is concerned, there is little change. Dr. Fulton was away for long periods of time during these late years, and the Clinic functioned as usual in his absence. Our work goes on, but we have lost our most inspirational leader, the founder of our organization, and the man who probably was closer to all of us than any other who touched our lives.

I think that most of you receive copies of the *Clinic Bulletin* as they are issued from time to time. We have devoted this last issue to a memorial for Dr. Fulton. If you have not received it already, you will shortly. In it we have printed the personal tribute from the doctors on the staff to the memory of this truly great man and we have added a picture of him that is so natural that I am sure you will like it too when you see it.

We have lost a leader in the Clinic, the Association has lost one of its most influential members. No word of mine is adequate to express the emotion I know we all feel.

THE PIG MAN

Beware of the man who has just sold two pigs!

During the month of June, several prominent specialists in Charleston were called upon to prescribe glasses for a man who had just sold two pigs to a Mr. Charles F. Ellis, and who had in his possession a check for fifteen dollars in full payment therefor. In every instance, the doctors accepted the checks, took out their fees, and handed over the balance in cash.

The gentleman with the faulty eyes gave his name as Barnes; his initials varied. He was described as being about six feet tall, fifty years of age, and a bit weatherbeaten. As one victim described him, "He looked like a dressed-up farmer."

As this gentleman farmer may be operating in other parts of the state, we extend this note of warning to prospective victims. We neglected to say that the checks were colder than a delicatessen ham.

TWENTY-FIVE YEARS AGO

(Taken from the Journal for August, 1913)

STATE NEWS

The following new appointments have been made to the State Board of Health: J. L. Pyle of Chester, J. H. Shipper, Gerrardstown; J. A. Rusmisell, Buckhannon; W. J. Davidson, Parkersburg; H. A. Brandeberry, Huntington; George P. Daniels, Marshes; G. D. Lind, Greenwood, and S. L. Jepson. The latter has been designated as secretary, to succeed Dr. H. A. Barbee, who has served in this capacity very acceptably for many years.

* * * *

Dr. Ford Huff of Parsons was somewhat indisposed during June. His father has been attending to his practice. The senior Dr. Huff is vigorous, alert and active, though over 80. He owns a curiosity in the shape of a carpenter's saw, with which he removed the first leg amputated on the Confederate side during the Civil war.

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Dr. B. F. Matheny is moving from Meadowbrook to Clarksburg.

* * * *

Huntington has recently had several cases of smallpox.

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Dr. and Mrs. C. O. Henry announce the marriage of their daughter, Agnes Lee to Mr. Edwin Victor Duffy, on Saturday, June 21st. Editorial congratulations to our very efficient ex-president and wife.

* * * *

SOCIETY PROCEEDINGS

The Mercer County Society

The meeting was held at Mercer Springs, West Virginia, Friday afternoon, June 27th, at three o'clock. Program: Doctors J. C. Jett, G. L. Todd, E. W. Horton, S. L. Johnson. J. C. Jett, J. J. Davidson to be voted on for membership in the society.

Papers were read by Doctors W. H. Wallingford, J. Percy McElrath, I. W. Taylor, J. M. Quinn and S. R. Holroyd.

Lunch.

Dr. St. Clair, Sec'y.

Cabell County Society

Huntington, W. Va., June 14

Editor W. Va. Medical Journal:

The regular monthly meeting of this society was held last Thursday evening in the Hotel Frederick.

The evening was devoted to a discussion of Dr. J. A. Guthrie's paper "Remarks Upon Endometritis."

Dr. H. W. Keatley was admitted to membership. Doctors B. L. Hume and George R. White both of Barboursville, were admitted to membership.

Fraternally yours,

James R. Bloss, Sec'y.

Obituaries

DR. A. H. WOODFORD

The death of Dr. A. H. Woodford of Belington occurred April 16, 1938 after only a few days of serious illness. He was 79 years of age and had been in rather failing health for the past five years.

Dr. Woodford was born January 8, 1859 in Barbour county. He was graduated from the University of West Virginia and later from the Medical School of Maryland. He married in 1895 and began his medical practice. He was a member of his county society, the West Virginia State Medical Association and the American Medical Association. Dr. Woodford was made an honorary member of the West Virginia State Medical Association in 1927. He is survived by his widow, one son and two daughters.

DR. EDWIN A. WILSON

Dr. Edwin A. Wilson of Salem, widely known Harrison county physician, died on July 12 at the age of 73 years. He had been in active practice in West Virginia for more than 40 years.

Dr. Wilson was born in Ritchie county, West Virginia, in 1865 and received his academic education in Salem and Pittsburgh. Later he entered the Cincinnati College of Medicine and Surgery, graduating in 1898. He received his West Virginia license by examination the year prior to his graduation.

Dr. Wilson served his community as health officer and also as school examiner for the Salem schools. He was affiliated with the Masonic and Knights of Pythias orders. He became a member of the Harrison County Medical Society and the State Association in 1909 and maintained active membership until his death.

County Society News

CABELL COUNTY

A special meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, at 8:15 o'clock on the evening of July 21 with Dr. Walter C. Swann, president, presiding. Dr. James R. Bloss, Huntington, trustee of the American Medical Association, was the speaker. His topic was "Some Phases of Medical Economics," which brought forth a liberal discussion.

BOYD F. BROWN, *Secretary.*

MERCER COUNTY

The Mercer County Medical Society met June 16 in the Memorial Building, Princeton. The attendance was better than average.

Dr. C. B. Chapman of Welch gave an interesting discussion on silicosis, and showed x-ray films demonstrating various stages of the disease. Dr. Franklin Reeder of Charleston gave an interesting and helpful talk on vital statistics. Both presentations were discussed by various members of the society.

The society adjourned until September. Following the meeting, the members were entertained at the home of E. B. Spangler, Ph.G., Princeton.

O. G. KING, *Secretary.*

McDOWELL COUNTY

A special meeting of the McDowell County Medical Society was held in Welch on the evening of July 6 with Dr. C. B. Chapman, president, presiding. There were sixteen members and two visitors present.

The purpose of the meeting was to ascertain the will of the society relative to cooperating with Dr. C. M. Scott and Dr. A. M. Price of the State Health Department in a movement to organize a syphilis clinic in McDowell county. After a talk by Dr. Scott and discussion by the members present, Dr. V. L. Wetherby moved that the society go on record as favoring the establishment of a venereal clinic, provided the final provisions be worked out as explained by Dr. Scott. This motion prevailed.

Dr. A. A. Baldwin was admitted to membership in the society. The secretary was instructed to send out notices of the date, time and place of the lectures on obstetrics and pediatrics to be held in the near future.

F. E. LAPRADE, *Secretary.*

POTOMAC VALLEY

An interesting meeting of the Potomac Valley Medical Society was held at Thorn Spring Park near Franklin at one o'clock p. m. on June 23, 1938, with a good attendance. Dr. V. L. Dyer, president, presided.

The guest speaker was Dr. Charles E. Conrad, Harrisonburg, Virginia, chairman of the Pediatric Section of the Southern Medical Association, who spoke on "Some Pediatric Problems of Special Interest to the Practicing Physician."

Dr. Orlando S. Reynolds of Franklin also gave a very interesting paper on "Analgesia in Labor." Both papers were greatly enjoyed and contained much of value. Following these two presentations, there was a round table discussion of life-saving procedures encountered in general practice.

An information committee on Medical and Dental Practice was appointed with Dr. James Newcome, Keyser, chairman, and Dr. T. C. Giffin and W. F. McFarland as members.

E. A. COURRIER, *Secretary.*

WETZEL COUNTY

The regular meeting of the Wetzel County Medical Society was held at the Schmied Tea Room, New Martinsville, on the evening of June 30 with 18 members and visitors in attendance. A fine chicken dinner was served at seven o'clock, after which Dr. Joseph Barach of the University of Pittsburgh spoke on the modern treatment of diabetes, illustrating his talk with lantern slides. He stressed the use of the longer acting crystalline insulin, protamine insulin and protamine zinc insulin. He also stressed the use of a high carbohydrate diet.

Following Dr. Barach's presentation, discussion was opened by Dr. W. M. Sheppe and Dr. J. T. Thornton of Wheeling. Other visitors included Dr. Jolliffe of New York City, Dr. Pennoch of Pittsburgh, Dr. W. C. D. McCuskey of Wheeling, and Dr. C. G. Morgan and Dr. J. C. Peck of Moundsville.

During the afternoon golf was enjoyed by Drs. J. O. Theiss, Dr. T. B. Gordon, Dr. J. C. Peck, Dr. C. G. Morgan, Dr. L. P. Stanley and Dr. W. C. D. McCuskey.

E. C. BLUM, *Secretary.*

Cold water in hot weather is one of nature's most blessed boons, but cold water applied suddenly, either externally or internally, is shocking.—*Hygeia.*

CONVENTION PHOTOS: (1) Dr. Bob Reed, Councillor, and Dr. Fred Gott, in the exhibit hall; (2) Mrs. E. H. Starcher, Omar, retiring Auxiliary President; (3) Dr. Irvin Abell, A.M.A. President, and Dr. E. J. Van Liere, Dean, W. V. U. School of Medicine; (4) Ray Bobbitt, Huntington, President-elect, and Dr. Russell Bond; (5) Auxiliary on the golf course, Mrs. C. E. Lewis, Mrs. J. E. Rucker, Mrs. R. R. Summers and Mrs. Emory Jordan; (6) Dr. Frank Langfitt, and Dr. Dean Lewis; (7) Drs. Spates Brady, James McClung, C. J. Reynolds, Gordon McKim and R. V. Shanklin; (8) Auxiliary officers: Mrs. F. S. Harkleroad, president; Mrs. Luther Bach, S. M. A. President, Mrs. E. H. Starcher, retiring president and Mrs. V. E. Holcombe, president-elect; (9) Mrs. Harkleroad and Mrs. Scott Ford; (10) Dr. J. E. Wilson, Mrs. Wilson, Miss Jane Wilson and Dr. J. E. Wilson, Jr.; (11) Councillors Phil Johnson, and Cliff John.

CONVENTION TRANSACTIONS

Seventh-first Annual Meeting, West Virginia State Medical Association

July 11, 12, 13, 1938

COUNCIL MEETING

The Council of the West Virginia State Medical Association met in the Virginian Room, Greenbrier Hotel, White Sulphur Springs, West Virginia, on Monday, July 11, 1938. The meeting was called to order by Dr. G. R. Miller, chairman, at 2:30 p. m.

Those present were:

Dr. G. R. Miller, Fairview, chairman; Dr. C. W. Waddell, Fairmont, president; Dr. T. M. Barber, Charleston, treasurer; Dr. W. E. Vest, Huntington, JOURNAL editor; Dr. R. J. Reed, Jr., Wheeling; Dr. Philip Johnson, Fairmont; Dr. B. C. John, Morgantown; Dr. W. G. Harper, Elkins; Dr. James McClung, Richwood; Dr. B. S. Brake, Clarksburg; Dr. R. J. Wilkinson, Huntington; Dr. Welch England, Parkersburg; Dr. Fred E. Brammer, Dehue; Dr. Ralph Hogshead, Montgomery; Dr. Robert K. Buford, Charleston; Dr. James R. Bloss, Huntington, past president; Dr. C. O. Henry, Fairmont, past president; Mr. Joe W. Savage, Charleston, ex-officio secretary.

Minutes of the last meeting were read and approved.

The report of the secretary was read by Mr. Savage and accepted.

The report of the treasurer was read by Dr. T. M. Barber and accepted.

Dr. Vest presented the report of the Publication Committee, which was accepted.

The District Councillor Membership Reports were received and filed.

The following Association members were elected to honorary membership in the State Association:

Dr. G. S. Gochenour, Moorefield; Dr. J. H. Brownfield, Fairmont; Dr. B. S. Preston, Charleston; Dr. C. E. Copeland, Charleston; Dr. W. T. Highberger, Maysville.

Mr. Savage presented a letter of resignation from Dr. C. A. Ray from the JOURNAL Editorial Board, which, after some discussion, was accepted by the Council with full appreciation of the splendid services rendered by Dr. Ray as a member of the Publication Committee for the past twelve years. On motion of Dr. Brammer, duly seconded, Dr. F. R. Whittlesey, Morgantown, was elected to succeed Dr. Ray on the Publication Committee for a term of five years.

Mr. Savage presented the bill for legal services rendered by the Greenbrier Valley Medical Society in the amount of $200.00 incident to securing an injunction against one Faith Starr for the illegal practice of medicine. After much discussion, the bill was ordered paid from Association funds. In order to forestall establishing a precedent in this regard the Council adopted the following rule of procedure governing requests for the expenditure of Association funds for similar cases:

"When any component county society requests the expenditure of funds by the West Virginia State Medical Association for any purpose, the request shall be referred to the councillors of the district involved. The said councillors will in turn transmit this request with their recommendation to the executive secretary. The executive secretary will transmit the information, by mail if necessary, to the members of the Council for their consideration and action."

On motion of Dr. Brammer, duly seconded and carried, an additional rule of procedure was adopted as follows:

"Mail votes on questions demanding the immediate decision of the Council are authorized to be made through the office of the executive secretary."

At the suggestion of Mr. Savage, it was duly moved, seconded, and carried that the Association headquarters be authorized to pay all necessary expenditures incident to connecting the sewers of the two houses on the Nicholson property with the sewer system of the City of Charleston.

On motion of Dr. Wilkinson, duly seconded and carried, the Council expressed its approval of expenditures for traveling expenses incident to the Annual Conference of County Society Secretaries and Presidents.

Mr. Savage called the attention of the Council to the recent decision of the Supreme Court of Kansas, restraining osteopaths from practicing medicine and surgery and limiting osteopathic activities strictly to the field of osteopathy. The Council instructed Mr. Savage to consult with our Associa-

tion attorney, Mr. Ben Moore, and secure full particulars and details relative to the cost, the length of time necessary, and the probability of success, if such procedure were attempted in this State, and to report to the Council at its next meeting.

Mr. Savage called attention to the recommendation of Council at its May 25, 1937 meeting, to establish a committee to study the advisability of establishing a subsidiary corporation to collect and dispense funds collected from corporations for the medical, surgical, and hospital care of employees. Mr. Savage explained that this committee was not appointed because the late Doctor Fulton felt that such a study should not be undertaken until after disposition of the injunction proceedings pending against the Staats Hospital in Charleston for practicing medicine and surgery without a license. At the suggestion of Dr. Waddell, the Council placed this matter in his hands and instructed Dr. Waddell to appoint such a committee if and when he felt the study recommended by Council should be undertaken.

Mr. Savage presented a written request from Dr. S. M. E. Simon, Williamson, to appear before the Council to request reinstatement to membership. As Dr. Simon had already recently appeared before the Council for the same purpose, and as jurisdiction of the case rested with the Mingo County Medical Society, the Council instructed Mr. Savage to advise Dr. Simon that he should take the matter up with his local county medical society.

There being no further business to come before the Council, the meeting adjourned at 4:25 p. m.

JOE W. SAVAGE, *Ex-officio Secretary.*

HOUSE OF DELEGATES

The meeting of the House of Delegates was called to order by Dr. C. W. Waddell, president, at 8:50 p. m. in Room 909, Greenbrier Hotel, White Sulphur Springs. Following roll call, minutes of the last meeting were approved as published in the WEST VIRGINIA MEDICAL JOURNAL.

The following reports (published at the close of these transactions) were received and accepted with the thanks of the House of Delegates:

Report of Executive Secretary, Mr. Joe W. Savage.

Report of Treasurer, Dr. T. M. Barber.

Committee on Necrology, Dr. C. O. Henry.

Public Assistance Advisory Committee, Dr. B. H. Swint.

Compensation Advisory Committee, Dr. B. H. Swint.

Publication Committee, Dr. Walter E. Vest.

Committee on Scientific Work, Dr. Russell C. Bond.

Committee on Maternal Welfare, Dr. James R. Bloss.

Committee on Child Welfare, Dr. Andrew E. Amick.

Committee on Cancer Control, Dr. Russell B. Bailey.

Committee on Syphilis Control, Dr. W. M. Sheppe.

The secretary read the proposed amendment to Section I of Article V of the Constitution, as follows:

"*Be it Resolved,* That Section 1 of Article V of the Constitution of the West Virginia State Medical Association be changed to read: 'Section 1. The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) delegates elected by the component county societies; (2) all ex-presidents; and (3) ex-officio the president, the two vice presidents and the treasurer of this Association. The councillors shall attend the meetings of the House of Delegates and may participate in all discussions but shall have no vote.' "

This resolution, introduced at the 1937 session and published twice in the WEST VIRGINIA MEDICAL JOURNAL, was read for the consideration of the House of Delegates. Dr. C. A. Ray's motion to table the resolution was carried by a vote of 24 in favor, 16 opposed.

Dr. A. S. Brady, Jr., Charleston, presented the following proposed amendment to Section 1, Article V of the Constitution, to lay on the table for one year and to be considered at the 1939 session:

"*Be it Resolved,* That Section 1 of Article V of the Constitution of the West Virginia State Medical Association, which now reads: 'Section 1. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component societies; (2) the councillors; (3) all ex-presidents; and (4) ex-officio the president and treasurer of this Association,' be hereby amended to read as follows: 'Section 1, Article V. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component medical societies; (2) all ex-presidents; and (3) ex-officio the president."

Dr. Brady then offered the following resolution:

"WHEREAS, the Public Health Council of the State of West Virginia has adopted a regulation requiring full citizenship to license and practice medicine and surgery within this state; and

"WHEREAS, this body has construed the statute controlling licensure to mean that only graduates of Grade A schools as classified by the Council on Medical Education and Hospitals of the American Medical Association may obtain license in the state; and

"WHEREAS, these actions have been made in the interest of the public welfare; be it therefore

"*Resolved*, That the House of Delegates of the West Virginia State Medical Association go on record as approving heartily the action of the Public Health Council in adopting these regulations."

The resolution was seconded by Dr. W. T. Gocke, and carried.

Dr. J. L. Patterson offered the following resolution to amend Section 2 of Chapter IV of the By-Laws as follows:

"*Be it Resolved*, That Section 2 of Chapter IV of the By-Laws of the West Virginia State Medical Association be hereby amended by adding to Section 2, Chapter IV, the following:

" 'All county society delegates, except the secretary, shall be elected for two year terms and when more than one delegate is to be elected, such delegates shall serve staggered terms so that the terms of only one-half the delegates, or major fraction thereof, of each society shall expire in any one year.' "

The chair ruled that the resolution should lay on the table for one day and be considered by the House of Delegates tomorrow evening.

Dr. R. H. Walker moved that the House of Delegates request a report from the Association delegates to the American Medical Association, to be given at the regular meeting of the House of Delegates tomorrow evening and at each annual session thereafter.

The motion was seconded by Dr. J .B. Clinton and was carried after some discussion.

Dr. R. H. Walker moved that the transportation and hotel expenses of the Association delegates to the American Medical Association be paid out of the funds of the West Virginia State Medical Association.

The motion was seconded by Dr. J. B. Clinton. The motion was lost on a standing vote, 25 to 16.

Dr. D. A. MacGregor moved that the legislative committee represent the West Virginia Medical Association to propose legislation for an annual appropriation for pneumonia typing facilities and distribution of therapeutic pneumonia serum gratis to indigents in West Virginia.

This motion was seconded by Dr. J. R. Bloss, and carried.

On behalf of the physicians of Wayne county, Dr. W. E. Vest offered the following resolution:

"*Be it Resolved*, That the State Medical Relief load has become entirely too heavy to carry by the medical profession of the state without greatly increased assistance from the State Department of Public Assistance.

"The fact that a man is a WPA worker should be accepted by the Department of Public Assistance as prima facie evidence that he and his family are entitled to medical relief and the physician should be paid by the Department of Public Assistance for such medical relief.

"This plan should also apply to all unemployed unable to pay their physician as well as to those who are receiving old age assistance.

"Under any plan the patient should always have the privilege of choosing his own physician."

Dr. Vest moved that the resolution be referred to the Public Assistance Advisory Committee for their action. The motion was seconded by Dr. J. R. Bloss, and carried.

There being no further business to come before the House, the meeting adjourned at 11:10 p. m.

JULY 12, 1938

The second and final session of the House of Delegates convened at 10:25 p. m. in the auditorium of the Greenbrier Hotel, White Sulphur Springs with Dr. C. W. Waddell, president, presiding.

Following the roll call the order of business was the election of officers and the following were elected:

President, Dr. Ray M. Bobbitt, Huntington; first vice president, Dr. H. D. Gunning, Ronceverte; second vice president, Dr. J. L. Blanton, Fairmont; treasurer, Dr. T. M. Barber, Charleston; first district councillor, Dr. Philip Johnson, Fairmont; second district councillor, Dr. A. P. Butt, Jr., Elkins; third district councillor, Dr. B. S. Brake, Clarksburg; fourth district councillor, Dr. Welch England, Parkersburg; fifth district councillor, Dr. R. V. Shanklin, Gary; sixth district councillor, Dr. Robert King Buford, Charleston; Council chairman, (to fill vacancy caused

by the death of the late Dr. W. S. Fulton) Dr. G. R. Miller, Fairview; Committee on Scientific Work, Dr. W. R. Goff, Parkersburg, chairman; Dr. R. J. Condry, Elkins; Dr. A. E. Amick, Charleston; Committee on Professional Relations, Dr. A. A. Shawkey, Charleston; Committee on Necrology, Dr. C. O. Henry, Fairmont; A. M. A. delegate, Dr. W. E. Vest, Huntington; A. M. A. alternate, Dr. W. P. Black, Charleston.

Recognition of the fiftieth birthday of Dr. R. J. Wilkinson of Huntington.

Meeting place for 1939, White Sulphur Springs, West Virginia.

Dr. A. A. Shawkey, second vice president, took the chair and the report of the Committee on the President's Address was presented by Dr. Jesse F. Williams of Clarksburg, as follows:

We, the members of this committee, having just heard and read the admirable address delivered before the 71st Annual Convention of the West Virginia State Medical Association by our worthy president, Dr. C. W. Waddell, wish to report to the House of Delegates that we consider this address to be a masterly summary of the manifest duties, obligations and privileges of the members of our profession.

Dr. Waddell speaks for the present and the future, but he pays well deserved tribute to the ancient traditions and customs of our medical fraternity. He gives due credit to the influence of the general practitioner and family doctor but at the same time recognizes that with the social evolution which the world has experienced in recent years there must come comparable evolutionary change in the modes and practices of medicines.

We take pride in the fact that our president is able to refer to the very cordial and cooperative relationship among the State Department of Public Health and the State Department of Public Assistance with our State Medical Association. We hope that this relationship shall continue and urge our officers to do all in their power to promote the same.

While Dr. Waddell's paper touched upon practically every phase of current medical problems, there is one particular admonition contained in his address which we wish to commend most heartily. We refer to his expressed desire that every member of our Association take an active interest in political, social and economic problems as they may effect the interests of organized medicine and furthermore that every individual consider it his personal obligation to give freely of his time and energy to any public office to which he may be appointed or elected.

We agree heartily with everything that our president has said in this his Presidential Address. We commend it to all of our numbers for their close consideration and study. We submit the thanks and the appreciation of the members of this committee to Dr. Waddell for his inspiring message.

Signed,

JESSE F. WILLIAMS, M. D., Clarksburg.
GEORGE R. MILLER, M. D., Fairview.
W. C. BOGGS, M. D., Cameron.

Dr. Oscar B. Biern moved the acceptance of the report, seconded by Dr. James L. Wade and carried.

Dr. Waddell resumed the chair and the next order of business was consideration of a resolution to amend Section 2, Chapter IV.

"*Be it Resolved,* That Section 2, of Chapter IV, of the By-Laws of the West Virginia State Medical Association be hereby amended by adding to the said Section 2, Chapter IV, the following:

"All county society delegates, except the secretary, shall be elected for two year terms and when more than one delegate is to be elected, such delegates shall serve staggered terms so that the terms of only one-half the delegates, or major fraction thereof, of each society shall expire in any one year."

Dr. Wade moved that the resolution be adopted, seconded by Dr. W. T. Gocke and Dr. Raymond Sloan and carried.

Dr. Andrew E. Amick presented the following proposed changes in the Association Constitution:

Section 1, Article V, to be changed as follows:

"1. The House of Delegates shall be the legislative and business body of the Association and shall consist of: First—delegates elected by the component county societies; Second—the five immediate past presidents; Three—ex-officio the president and treasurer of this Association."

Section 1, Article IX, to be changed to read:

"The officers of this Association shall be a president, president-elect, two vice presidents, executive secretary-treasurer, twelve councillors to be elected as provided in Section 2, and two councillors-at-large who shall be the retiring president and his immediate predecessor."

Section IV to be changed to read:

"The retiring president shall be chairman of the Council for the year following his term of office, and he shall not be eligible thereafter for any elective office of the Association except for delegate to

the A. M. A. and committee membership. And he may be elected a delegate from his county society."

CHANGE IN BY-LAWS

Section 2, Chapter V, to read as follows:

"1. The officers of this Association shall be nominated by the Council at a meeting held just prior to the meeting of the House of Delegates at which time the Presidential Address is to be given. Except the Council shall be nominated and elected by the House of Delegates.

"2. There shall be two candidates nominated for each office.

"3. The officers of this Association shall be elected by the House of Delegates immediately following the President's Address."

Dr. Waddell ordered that the proposed changes be laid on the table one year for consideration at the 1939 annual session. In the meantime Mr. Savage was instructed to submit the proposed changes to the Association's Committee on Constitution and By-Laws.

Dr. Ivan Fawcett was called upon to present his report as a delegate to the A. M. A. meeting in San Francisco. Owing to the lateness of the hour, Dr. Fred E. Brammer moved that the reading of the report be dispensed with and that it be published in the JOURNAL. This motion was seconded by Dr. H. V. Thomas and was carried after some discussion.

Dr. W. R. Goff of the Surgical Section was granted the privilege of the floor and he advised the House of Delegates that the Surgical Section failed to select a chairman and secretary at its meeting on Monday. He requested that the House of Delegates name these two Surgical Section officials. On motion of Dr. C. B. Wright, seconded by Dr. Fawcett, Dr. Robert J. Reed, Jr., of Wheeling was elected chairman of the Surgical Section. On motion of Dr. Philip Johnson, seconded by Dr. Brammer, Dr. B. S. Brake of Clarksburg was elected secretary of the Surgical Section.

Dr. Harry G. Steele of Bluefield, in a brief address to the House of Delegates, requested that the West Virginia Obstetrical and Gynecological Society be granted permission to meet with the various other Sections of the Association at future Association conventions. This matter was referred to the Program Committee.

It was moved by Dr. Reed, that a vote of thanks be tendered the delegates of the A. M. A. in view of the fact that they had worked until three o'clock in the morning to prepare their delegates report. This motion was seconded by Dr. J. B. Clinton and carried.

Dr. Fred E. Brammer moved that the House of Delegates go on record approving the film "The Birth of A Baby" which was shown prior to the opening of the convention on Sunday evening, July 10. At the suggestion of Dr. R. K. Buford, the motion was amended to approve the film for showing to "Adults Only." The motion was duly seconded and was lost by a vote of 12 to 13.

On motion of Dr. J. Howard Anderson, duly seconded, the House of Delegates extended a vote of thanks to the Greenbrier Valley Medical Society and the Greenbrier Hotel for their hospitality and entertainment provided during the convention.

Dr. P. A. Tuckwiller moved to reconsider the vote by which the motion to approve the film "The Birth of A Baby" was lost. The motion was seconded by Dr. Thomas.

A motion by Dr. C. O. Henry to adjourn was lost.

The motion to reconsider was then placed before the House and was carried. The motion to approve the film "The Birth of A Baby" for "Adults Only" was then presented and carried 16 for and 11 against.

Dr. Waddell thanked the delegates and members of the Association for their very fine assistance and cooperation during his term of office. There being no further business to come before the House of Delegates the meeting adjourned at 12:45 a. m.

JOE W. SAVAGE, *Ex-officio Secretary.*

SECTIONAL OFFICERS

The following officers of the various special societies and sections of the scientific assembly were elected at the White Sulphur Springs meeting:

Section on Pediatrics—Dr. J. L. Blanton, Fairmont, chairman; Dr. Theresa O. Snaith, Weston, secretary.

Section on Internal Medicine—Dr. F. R. Whittlesey, Morgantown, chairman; Dr. James L. Wade, Parkersburg, secretary.

Section on Surgery—Dr. Robert L. Reed, Jr., Wheeling, chairman; Dr. B. S. Brake, Clarksburg, secretary.

Eye, Ear, Nose and Throat Section—Dr. Welch England, Parkersburg, chairman; Dr. J. Hallock Moore, Huntington, secretary.

West Virginia Heart Association—Dr. R. J. Condry, Elkins, president; Dr. L. C. McGee,

Elkins, vice president; Dr. P. A. Tuckwiller, Charleston, secretary.

West Virginia Obstetrical and Gynecological Society—Dr. W. W. Point, Charleston, president; Dr. A. M. Dearman, Parkersburg, vice president; Dr. E. J. Humphrey, Huntington, secretary. Board of Governors—Dr. Francis A. Clark, Charleston; Dr. W. E. Hoffman, Charleston; Dr. H. E. Beard, Huntington.

SECRETARY'S REPORT

The first part of this report will deal with membership and finance. The Association has been very successful in both of these departments during the past year.

At the annual meeting last year the Association had 1,098 members, as compared with 1,148 members at the present time. This is an increase of 50 members during the year.

At last year's convention we had 93 delinquent members. This year we have 67, so we have 26 fewer delinquents this year than last.

I would particularly like to commend the Second Councillor District, which made an increase of 16 members, with every member paid up and in good standing.

County medical societies that deserve honorable mention for having 100 per cent paid up memberships are: Barbour - Randolph - Tucker, Boone, Brooke, Central West Virginia, Doddridge, Eastern Panhandle, Fayette, Potomac Valley, Marion, Mercer, Monongalia, Preston, Raleigh, Summers, Taylor, Wetzel, and Wyoming. This is the largest number of 100 per cent paid up societies we have ever had. No unusual efforts were made to stimulate membership. Apparently our rather healthy membership status would indicate the satisfaction of the profession with the activities of their state society.

During the past year the Association has taken in 96 new members, 24 members have died, and 27 former members have moved away.

Finance: Our fiscal year closes on May 1. On that date in 1937 the total assets of the Association amounted to $30,530.21. On May 1, 1938 the total assets amounted to $33,214.06. This is an increase of $2,683.85 during the past twelve months. That figure, $2,683.85, represents what the Association put aside during the twelve months' period ending May 1, 1938.

The present total assets are represented as follows:

Cash	$ 9,335.69
Nicholson property	13,442.57
Annuity contract	2,485.80
Surrender value — Nicholson Life Insurance	7,950.00
Total	$33,214.06

The total income from Association dues amounted to $11,524.50. The total operating expense of the Association headquarters amounted to $11,857.88. This includes the annual premium for the Nicholson insurance policy in the amount of $1,265.50, convention expenses of approximately $500, and the complete expense, including travel allowance, for the Annual Conference of our County Society Secretaries, and the construction of the new cloak room, wash room, and toilet at the Association headquarters, amounting to $296.00. I mention these items because they are not really a part of the operating expense of the headquarters office, but are charged against the General Fund of the Association.

A large part of the profit set aside by the Association during the past year was made by the WEST VIRGINIA MEDICAL JOURNAL. On May, 1, 1937 the JOURNAL had a balance of $8,784.95. On May 1, 1938 the balance was $10,092.95. In addition to this is included $360 increase in the value of the JOURNAL's annuity contract. This makes a total JOURNAL profit for the year of $1,668.00.

The only expenditure from the Indigent Fund during the past year was in the amount of $300, paid at the rate of $25.00 per month to Mrs. S. A. Daniel of Welch, for the support of Dr. S. A. Daniel, who has been in ill health and unable to practice for the past six or seven years.

The Nicholson property account showed a profit for the year of $651.82. Total rental for the year amounted to $930.59. Disbursements were as follows:

Insurance	$ 111.60
Taxes	129.56
Repairs	37.61
Total	$ 278.77

Subtracting this from the rent total leaves the profit of $651.82.

I believe you will be able to get a fairly good insight into the various Association activities and the work of the Association headquarters by the various committee reports, which are to follow.

The report of the Publication Committee will deal with the conduct and management of the JOURNAL. The reports of the Committees on Syphilis and Cancer Control will show what the Association has been doing along these two important lines. The report of the Committee on Scientific Work can be gauged by the program for this annual meeting. The report of the Committees on Maternal Welfare and Child Welfare will bring your attention to the considerable work that has been done on Postgraduate Refresher Courses. The report of the Advisory Committee to the Public Assistance Department and the Compensation Department will convince you of the unusual volume of work that has been handled by this group. As your secretary, I have served as ex-officio secretary of all of these committees. Naturally, I claim no credit for their accomplishments, but mention these activities simply to indicate that our office is kept fairly busy.

Perhaps the most important activity that is being engaged in in organized medicine today is the Survey of Medical Needs being conducted by the American Medical Association. All of the forms have now been sent out to our county medical societies for distribution to individual doctors, dentists, druggists, and other persons and groups connected with the distribution of medical service. It is sincerely hoped that every Association member will promptly fill out the questionnaire which is placed in his hands and return it at once to his county secretary.

There has been some criticism of the forms for the individual practitioner. No doubt it was quite difficult for the American Medical Association to prepare a standardized form which would serve the doctors in every state. May I ask, on behalf of the American Medical Association, that the delegates here assembled go back and ask the members in their respective societies to do the best they can with the questionnaires.

The reason this work is so important is that it is the only comprehensive Survey of Medical Needs made by the medical profession. Numerous surveys have been made by many different groups opposed to the interests of the medical profession. The doctors themselves have never been able to successfully refute the alleged facts and data given out by these different antagonistic groups. It is the desire of the American Medical Association, represented by every doctor here, to conduct an honest and fair survey in order to determine what are the medical needs of this country, and then to govern its future activities by the results of the survey.

The members of the House of Delegates will no doubt be interested in the action of the House of Delegates of the American Medical Association at San Francisco, in regard to various resolutions introduced, endeavoring to curb the infringement on the practice of medicine by hospitals; particularly infringements that have been brought about through the establishment of hospital insurance plans. Three resolutions were introduced at San Francisco in this regard, and referred to the Council on Medical Education and Hospitals. On the recommendation of the Council on Medical Education and Hospitals, the House of Delegates voted unanimously to empower the Council, jointly with the Bureau of Medical Economics, to confer with other interested agencies in order to establish ethical standards for the practice of medicine by physicians holding hospital positions, and to withdraw the approval of the American Medical Association from hospitals that are found during this study to be exploiting the public and the profession by engaging in procedures that belong to the licensed practitioner of medicine.

Most of you are familiar with the work which has been done in your own State along these lines. I refer to the injunction awarded by the Circuit Court of Kanawha county, restraining the Staats Hospital of Charleston from engaging in the practice of medicine. Briefly reviewing the Staats case, the Staats Hospital had a contract with the Charleston employees of the Owens-Illinois Glass Company to render hospital, medical and surgical service at a fixed rate per month. The court injunction invalidated this contract and restrained the Staats Hospital from engaging in medical or surgical practice. While the proceedings were pending in court, Dr. Staats, owner of the hospital, drew up a new contract with the employees, in his own name, to render medical and surgical service. At the request of representatives of the Kanawha Medical Society, Dr. Staats recently voluntarily gave up all of his list work for medical and surgical service in the City of Charleston.

The approach in West Virginia and the approach of the American Medical Association are quite different, but they are both directed toward the same end.

I would like to call the attention of the House of Delegates to a proposed legislative statute that will be considered by the West Virginia Bar Association next month, and, if approved, will be introduced at the next bi-annual session of the legislature. This proposed new law is directed chiefly against

the present system of expert medical testimony; particularly in accident cases. The proposed new statute would empower the Judges of Circuit and Common Pleas Courts to appoint three doctors to examine all plaintiffs suing for damages for injuries, ill health, etc. The report of the three doctors appointed would then, of course, be introduced as evidence at the trial, and no further expert medical testimony would be required. I merely bring this to your attention for whatever consideration or discussion you think it is worth.

If there are other matters pertaining to prospective legislation for the 1939 session of the legislature, I am sure our Legislative Committee would be glad to have such matters discussed by this House of Delegates, so that the Committee and Council will be better equipped to carry out the wishes of the membership of this Association.

At the meeting of the American Medical Association in San Francisco less than three weeks ago, the House of Delegates was presented with a communication from Miss Josephine Roche, chairman of the Interdepartmental Committee to Coordinate Health and Welfare Activities of the Federal Government. Her communication was approved by President Roosevelt before it left Washington. After commenting upon the Committee's work in eliminating duplication of effort and the problems of public health, Miss Roche dealt at length with the report of the National Health Survey, which, she said, proved that with poverty goes not only a higher rate of sickness, but a deficiency of medical care. Looking toward a remedy for this problem, she requested the aid of the American Medical Association when this is brought up at the National Health Conference in Washington on July 18, 19 and 20, 1938.

The government's technical committee on medical care will submit to the National Health Conference its analysis of needs and tentative recommendations as to meeting these needs. These recommendations have been submitted to President Roosevelt and it is at his order that they are to be brought before the National Health Conference. These recommendations are first; the need for more comprehensive public health services to combat specific diseases or groups of diseases, such as tuberculosis, the venereal diseases, pneumonia, malaria, cancer and other chronic diseases of middle and old age, mental diseases and deficiency, and industrial hazards.

Second, the need for expansion of maternal and child health services.

Third, the shortage or unequal geographical distribution of hospitals, clinics, doctors, dentists, nurses and other agencies and trained experts in the field of health and medical care.

Fourth, means of providing more adequate medical care for recipients of public assistance and other persons of very low income.

Lastly—methods of financing the sickness costs of self-supporting persons of limited income.

This last recommendation of the technical committee is the crux of the great problem of socialized medicine which we are now facing. Miss Roche stated that no formal action would be requested from the National Health Conference; she hoped that none of the groups or individuals participating in the Conference would attempt to make premature judgments. "Our purpose," she said, "is to obtain the frankest discussion of ways and means of dealing with these immense and complete problems."

Other observations in the communique were "There will be concerted public action eventually for such a program. . . . Already they are on the march, and the only question which remains is whether highly specialized groups (the medical profession) experienced and trained in ways and means of meeting human needs, are going . . . to offer all they can give in constructive and progressive leadership . . . How can we help to bring the wonderful achievements of the medical profession to all our people who need them . . . That is the question which we submit to you today, and will go on asking until we find the answer."

Here, for the first time, is a statement from the administration that changes are to be made. Here, also, is an invitation to organized medicine to recommend those changes. Whether such change will be vast or slight, whether they will be evolutionary or revolutionary, will depend largely upon the attitude of the profession itself. What this attitude should be is for you to determine. My purpose in bringing this matter to your attention is to familiarize you with this latest and most important development in medical economics, and to stress once more the need for the Survey of Medical Needs being conducted by the American Medical Association.

As most of you recall, it was not my privilege to attend last year's meetings of the House of Delegates, due to a malady which was quite harmless but difficult to classify. I wish to this time to ack-

nowledge with keen appreciation the resolution of sympathy which you gentlemen so kindly extended me. The afflicted portion of my anatomy healed shortly thereafter and further sulphur treatments were discontinued.

To the officers, delegates, and members of the Association may I express once again my deep thanks for your most friendly and cooperative attitude toward the office which you have placed in my charge.

JOE W. SAVAGE, *Executive Secretary.*

AUDITOR'S REPORT

To the Council,
West Virginia State Medical Association,
Charleston, West Virginia.

Gentlemen:

Pursuant to my engagement, I have audited the receipts and disbursements of the several funds of the West Virginia State Medical Association covering the fiscal year ended April 30, 1938.

Beginning with the cash balance as set forth in my audit for the preceding fiscal year, I have made test verifications of receipts, examined cancelled checks covering all disbursements, and reconciled the cash book balances with statements from the depositories. As a result of the audit, I hereby certify that all receipts of record have been fully accounted for as stated in the attached statements.

At the beginning of the fiscal year under review, there was a cash balance of $7,704.64. During the period under review there was a total income from all sources in the amount of $20,286.73, total disbursements in the amount of $18,655.68, leaving a cash balance at the end of the period in the amount of $9,335.69.

The disbursements as stated include the annual premium for insurance on the life of Dr. Hugh G. Nicholson in the amount of $1,265.50 and the annual payment on the annuity contract with the Fidelity Investment Association in the amount of $352.80.

The assets of your Association as of May 1, 1937, were $30,530.21, and as of May 1, 1938, $33,214.06, an increase of $2,683.85 as stated below.

	May 1, 1937	May 1, 1938	Increase
Cash	$ 7,704.64	$ 9,335.69	$1,631.05
Nicholson Property (Cost)	13,442.57	13,442.57	—0—
Annuity Contract (Cost)	2,133.00	2,485.80	352.80
Surrender Value of Life Insurance	7,250.00	7,950.00	700.00
	$30,530.21	$33,214.06	$2,683.85

Respectfully submitted,
BEN H. PUCKETT,
Certified Public Accountant.

COMBINED STATEMENT OF RECEIPTS AND DISBURSEMENTS

FISCAL YEAR ENDED APRIL 30, 1938

Balance Brought Forward May 1, 1937 (Cash)		$ 7,704.64
RECEIPTS:		
Dues	$11,524.50	
Advertising (Net)	6,550.15	
Emblems and Frames Sold	165.07	
Commercial Exhibits	1,075.00	
Rent — Nicholson Property	930.59	
Miscellaneous	41.42	$20,286.73
Total to be Accounted For		$27,991.37
DISBURSEMENTS:		
General Fund	$11,857.88	
Medical Journal Fund	5,430.64	
Indigent Fund	300.00	
Medical Defense Fund	—0—	
Convention Fund	788.39	
Nicholson Property Fund	278.77	$18,655.68
Balance April 30, 1938 (Cash)		$ 9,335.69
Charleston National Bank:		
Checking Account	$ 8,163.14	
Savings Accounts	115.89	
National Bank of Commerce:		
Savings Account	1,056.66	
	$ 9,335.69	

GENERAL FUND

Balance Brought Forward May 1, 1937		$ 7,434.86
RECEIPTS:		
Dues	$11,604.50	
Less: Refunds	80.00	$11,524.50
Total to be Accounted For		$18,959.36
DISBURSEMENTS:		
Salary of Executive Secretary	$ 5,324.50	
Office Salaries	1,376.30	
Office Supplies and Expense	427.10	
Office and Library Rent	480.00	
Telephone and Telegraph	200.31	
Postage	355.50	
Travel Expense	1,035.71	
Convention Expense	497.66	
Annual Premium for Insurance on Life of Dr. Hugh G. Nicholson	1,265.50	
Construction of Wash Room and Toilet	296.00	
Social Security — (Old Age)	73.90	
Miscellaneous	525.40	$11,857.88
Balance April 30, 1938		$ 7,101.48

WEST VIRGINIA MEDICAL JOURNAL FUND

Balance Brought Forward May 1, 1937			$ 8,784.95
RECEIPTS:			
Advertising	$ 7,509.18		
Less: Discounts	959.03	$ 6,550.15	
Emblems and Frames Sold.		165.07	
Miscellaneous		23.42	$ 6,738.64
Total to be Accounted For.			$15,523.59
DISBURSEMENTS:			
Printing	$ 4,350.68		
Engraving	196.99		
	$ 4,547.67		
Less: Discounts	115.42	$ 4,432.25	
Postage		149.84	
Emblems Bought		170.00	
Annuity Contract — Fidelity Investment Association		352.80	
Miscellaneous		325.75	$ 5,430.64
Balance April 30, 1938			$10,092.95

INDIGENT FUND

Balance Brought Forward May 1, 1937	$ 3,594.62
DISBURSEMENTS:	
Benefits Paid to Mrs. S. A. Daniel	300.00
Balance April 30, 1938	$ 3,294.62

MEDICAL DEFENSE FUND

Balance Brought Forward May 1, 1937		$ 483.42
RECEIPTS:		
None		
DISBURSEMENTS:		
None		
Balance April 30, 1938		$ 483.42

CONVENTION FUND

Balance Brought Forward May 1, 1937 (Overdraft)		$ 119.29
RECEIPTS:		
Commercial Exhibits	$ 1,075.00	
Miscellaneous	18.00	$ 1,093.00
Total to be Accounted For		$ 973.71
DISBURSEMENTS:		
Supplies and Labor	$ 539.94	
Travel Expense	90.90	
Entertainment	156.50	
Miscellaneous	1.05	$ 788.39
Balance April 30, 1938		$ 185.32

NICHOLSON PROPERTY ACCOUNT

Deficit Fund Account May 1, 1937		$12,473.92
RECEIPTS:		
Rents		$ 930.59
Total to be Accounted For		$11,543.33
DISBURSEMENTS:		
Insurance	$ 111.60	
Taxes	129.56	
Repairs	37.61	$ 278.77
Deficit Fund Account April 30, 1938		$11,822.10
Cost of Property	$13,442.57	
Net Earnings	1,620.47	
Book Balance	$11,822.10	

PUBLIC ASSISTANCE ADVISORY COMMITTEE

Your Public Assistance Advisory Committee first wishes to report that the twelve months just ended has been the least troublesome of any similar period since our committee was created. It has been the least troublesome because there have been far fewer complaints. Our Association membership is fairly well satisfied with our Public Assistance setup, or they have lulled this committee into a false sense of well being.

At the Association meeting at Clarksburg last year, this House of Delegates, at the instance of the Section on Surgery, instructed our committee to prepare a list of surgeons qualified to do Rehabilitation Surgery. It was felt that because of recurrent hernias and other difficult rehabilitation procedures, something more than the ordinary surgical talent was required in order to achieve satisfactory results. This was a most difficult task, and one that required approximately four months work before it was finally completed. As we have been subjected to some individual criticism for the end-results accomplished, we would like to go a little into detail as to our method of procedure.

We first met with duly authorized representatives of the Surgical Section and adopted a set of minimum standards. We agreed to qualify without question all Fellows of the American College of Surgeons. We further agreed that so far as practicable, rehabilitation surgeons should have had two years residency in surgery and should have a record of at least 50 major surgical operations per year for the two preceding years. We reached a general understanding that these minimum standards should be elastic enough to permit us to qualify men who had not received two years residency, perhaps not even one year, but who had trained under our own leading surgeons and whose experience and results gave them recognition as leading surgeons of their communities. Had we not agreed to this elasticity in our minimum standards, we would have ruled out not only many of our leading West Virginia surgeons, but men who were badly needed, because of geographical location, to help carry out the rehabilitation program without an unusual financial burden for transportation.

Let me point out here that we could have made our work much easier had we limited rehabilitation work to the Fellows of the American College of Surgeons. We did not do that for obvious reasons. Again, we could have made our task much simpler had we remained steadfast to our minimum standards. I have explained why we didn't do that. We all felt that we would be shirking our responsibility to this Association if we hid behind iron-clad regulations that would have eliminated many of our capable surgeons from this program. But this elasticity, which has materially broadened the sphere of rehabilitation activity, has also thrown our committee open to the possibility of human error. Naturally we have made some errors. We feel sure we have qualified a few men whose surgical ability, to say the least, is open to question. We also feel sure that we have turned down the applications of a few men who are properly qualified. Many of these errors have been brought to us on appeal, and we have corrected them. Other appeals will no doubt be made from time to time.

In passing upon the qualifications of men whose credentials failed to meet our minimum standards, we spent more than three months hard work. In every instance we sent out an average of half a dozen confidential letters to other doctors and other surgeons in the community or vicinity of the applicant under consideration. In many instances we wrote for and secured complete hospital records of

operations and operative results. In other instances we summoned applicants to appear before us. In still other instances we summoned disinterested non-surgeons so that we could question them about various applicants. In one case involving several surgical applicants, three different doctors traveled a total of almost one thousand miles to offer invaluable advice and suggestions to our committee, which eventually brought about the correction of a grievous though unintentional error made by this committee.

You gentlemen might well ask why we are so concerned over this matter of surgical qualifications. Let me call your attention to the fact that the State of West Virginia has placed upon this Association the responsibility for providing its best surgical talent for the rehabilitation program. You, in turn, have placed this responsibility upon us. Thus far our entire effort has been directed toward the inclusion of every qualified surgeon in this program and living up to the responsibility which both you and the State have requested us to shoulder.

You will recall that at the Clarksburg meeting last year, the mileage rate incident to rendering medical service to public assistance clients was five cents per mile. This was discussed in last year's report. Shortly thereafter the members of this committee personally appeared before the Public Assistance Advisory Board, and, at our request, the mileage was increased to 10 cents per mile (each way) on hard surfaced roads, and fifteen cents per mile (each way) on other roads. This was designed chiefly to aid the physicians in rural practice. That is the only major change that has been made during the past 12 months in public assistance rates and fees. Of course, our committee has adjusted innumerable disputes and complaints between individual doctors and county relief administrators. With only one exception, I think we have been successful in ironing out all disputes. However, this is our usual routine work and needs no elaboration here.

Before closing we would like to report that at the request of the Hospital Association of West Virginia, our committee, acting solely for the Hospital Association, clarified their status with regard to the hospitalization of rehabilitation and relief clients. Briefly, the Public Assistance Advisory Board ruled last December that only hospitals approved or conditionally approved by the American College of Surgeons could participate in rehabilitation or relief hospitalization. The Hospital Association desired a broader classification. Our committee was asked jointly by the Hospital Association and the Public Assistance Department to act as referee in adjusting their differences. This we agreed to do early in January. By March 15, through Dr. T. W. Nale, who represented us, all of the appealing and non-approved hospitals were personally inspected, our recommendations were accepted by both parties, and this work is now completed. We mention this simply as an extra-curricular activity of our committee.

A little over a year ago our committee recommended to the Public Assistance Department that a full-time physician be employed with our joint approval to serve as a liaison officer between our profession and the department. This suggestion was adopted and, at our suggestion, Dr. Donald L. Butterfield was placed in this important position. All members of this committee join me in expressing to Dr. Butterfield our sincere appreciation for the splendid work he is doing for both groups. West Virginia is generally recognized as having the best medical relief set-up in the entire country. If this is true, we believe it is largely the result of Dr. Butterfield's unusual ability, and the fact that he was employed with the approval and endorsement of all parties concerned. We hope that the medical profession and the State of West Virginia will continue to receive the benefit of his services for a good many years to come.

Your committee would also like to officially recognize the cordial relationship that exists between this committee, acting for the Association, and Mr. A. W. Garnett, Public Assistance Director. Mr. Garnett, the State Advisory Board, and Mr. C. W. Ritter, head of the Adult Physical Rehabilitation Bureau, have been most considerate and sympathetic toward the problems of organized medicine, and most fair in all of their dealings with our group. We want you gentlemen to know of their friendly and cooperative attitude.

B. H. SWINT, *Chairman*,
G. G. IRWIN,
JOHN W. MOORE.

COMPENSATION ADVISORY COMMITTEE

In addition to acting as your Advisory Committee to the Department of Public Assistance, we have also served in the same capacity to the Workman's Compensation Department. Our work with the department has been more or less routine. We have had a number of meetings with Senator Matthews, commissioner, and Dr. G. C. Schoolfield, medical director. The unusual small number of appeals to our committee during the past twelve

months would indicate that the relationship between the Compensation Department and the medical profession is on a very even keel. All disputes and appeals to our committee have been adjusted and nothing is pending at the present time.

The very fact that this committee is in existence is, we believe, an excellent influence on both the Compensation Department and the medical profession. The fact that this committee is an appeal board has a tendency to minimize disputes, as evidenced by the reduction of appeals by approximately 75 per cent during the past year.

In these few brief observations, our committee wishes to express its appreciation to Senator Matthews and Dr. Schoolfield, and Mr. Ralph Hartman, secretary of the department, for their understanding of and cooperation with the problems of our profession. Even more particularly, we wish to commend the doctors of West Virginia for the remarkable reduction in disputes and appeals and for their fairmindedness in all of their dealings with our committee.

H. B. SWINT, *Chairman*,
G. G. IRWIN,
JOHN W. MOORE.

COMMITTEE ON MATERNAL WELFARE

It has been the desire of the West Virginia Medical Association to offer some type of postgraduate work to its members throughout the state for several years, but never until 1936 had it been possible to do so, chiefly due to the lack of financial assistance. The State Health Department cooperating with the West Virginia Medical Association devised a plan whereby all physicians in this state would have an opportunity to familiarize themselves with some of the methods that were being used in the field of medicine today. It was deemed advisable by the representatives of the West Virginia Medical Association and the State Health Department that the first postgraduate work offered should be in the field of pediatrics; due, first, to the high infant mortality rate in the State of West Virginia; second, as a means to educate the laity as to the necessity of adequate prenatal care; and third, to prepare the field for postgraduate instructions in obstetrics to physicians in the year of 1937.

During a six-week period in July and August of last year lectures were given at strategic points throughout the state.

These lectures were sponsored by the office of the State Health Commissioner through the Division of Maternal and Child Hygiene. They were arranged by your Committees of Maternal Welfare and Child Hygiene in conference with the director of the division, Dr. Thomas H. Blake, and the Advisory Council of his department. The lectures dealing with pediatrics will be reported upon by the general chairman of your Committee on Child Hygiene.

The state was divided into three circuits and the lectures given one day each week. Each of the lecture points was visited on the same day of the week. The first three weeks the lectures were upon obstetrics; the fourth and fifth weeks were devoted to pediatrics, and the sixth week to venereal diseases.

The northern circuit had lectures delivered at Clarksburg, Fairmont, Morgantown, Keyser and Martinsburg. The lecture points of the western circuit were Parkersburg, Charleston, Logan, Williamson and Huntington. The southern circuit was composed of Beckley, Hinton, Bluefield, Ronceverte and Elkins.

In the northern circuit a total of eighty physicians registered and the attendance at the obstetric lectures was fifty-four for the first and second lectures and fifty-six for the third. In the western circuit one hundred and two were registered and sixty-five were present at each of the three obstetric lectures. In the southern circuit seventy-eight were registered and sixty-seven were present at the first lecture, forty-two at the second and fifty-eight at the third. This attendance, while not large, is very encouraging.

County societies were requested to arrange all the details for holding these meetings and a registration fee was charged those in attendance.

In some localities the interest manifested in these meetings was marked; in others what might be termed "luke warm" and, sad to relate, in a few was nil or even antagonistic. The attitude in these latter instances seemed to be due to a feeling that this was just another step toward "state medicine", whatever that may be, and the physicians simply remained away.

Your committee feels that the lectures given were decidedly worthwhile as so-called "refresher courses." We also feel that we should be encouraged by the response to this first serious effort to undertake the bringing of postgraduate lectures to the membership of the county societies.

As a result of the experience gained through this effort and in hope that greater interest may be

awakened, the work will be undertaken in a somewhat different manner this year.

The state has been divided into what might be termed a northern and southern district. In the northern area are the societies of Lewis, Marion, Wetzel, Eastern Panhandle and Potomac Valley. The southern group consists of Fayette, Greenbrier Valley, Logan, McDowell and Raleigh.

As was done last year, one day each week will be determined upon in each center for these lectures. The first three weeks will be devoted to obstetrics and the last two to pediatrics. The courses have been arranged to begin Monday, July 18, at Martinsburg, in the northern section, and in Fayette county in the southern area.

The lecturers secured for this year's courses are Dr. L. H. Douglass, Professor of Obstetrics at the University of Maryland, and Dr. T. C. Goodwin, Chief of the Division of Pediatrics, Baltimore City Hospital, for the northern area. In the southern area will be Dr. William F. Mengert of the School of Medicine of the University of Iowa for obstetrics and Dr. Lee Palmer of Louisville, on pediatrics.

There will be no registration fee charged this year and since the State Association is sponsoring and conducting these postgraduate courses, it is hoped that the interest will be greater and the attendance much increased over that of previous years.

Your chairman regrets that he is not able to report upon the interest manifested by the district committees in the stimulation of Maternal Welfare through lectures, clinics, et cetera, in conjunction with groups which should be interested in this subject. No reports touching upon meetings and activities in the various districts have reached your chairman.

It is recommended that ways be devised to stimulate greater interest among the laity by educational lectures and so on. When the mothers and prospective mothers become educated to the importance of proper obstetric care they will demand it. Then, and not until then, they will get it and will expect to pay a larger fee for complete maternal care.

JAS. R. BLOSS, *Chairman.*

COMMITTEE ON CHILD WELFARE

With the inception of the plan of 'refresher' or postgraduate courses for physicians in the year 1936 the program was limited to lectures in pediatrics. In 1937 obstetrics and venereal lectures were added. For 1938 the lectures are to be limited to obstetrics and pediatrics.

The attendance in 1936 was approximately 170 doctors. The attendance in 1937 was approximately 280 doctors. In the institution of this program it was to be expected that mistakes would of necessity be made. The attendance record is a source of much regret. The Federal Government in making the annual grant for this work—$20,000.00—definitely earmarks it for work in obstetrics and pediatrics.

Those of our membership who have attended the courses have been loud in their praise for the work, and feel that the courses should be continued.

Some sections of the state have not taken the proper reaction towards the program as a whole. The reason for this appears to be the feeling that such a program serves to assist in the advent of socialized or so-called state medicine. This idea, coupled with the natural resentment to any program offered by the State Health Department, has been a definite handicap. At a meeting of the Advisory Committee this January, it was proposed to present to our Council the possibility of taking over the work for the year 1938 with the result that our Association has charge of the program at the present time.

In this connection too much praise cannot be given our State Health Department officials for their spirit in helpful cooperation. Doctors McClue, Blake and Nale have most certainly shown us in every way possible their willingness to have this work carried on by our Association, with the financial assistance of the Health Department. It remains now for us to throw all our energy behind the program for this year and so to more than trebble the attendance records of the previous years.

The intent of the lectures is to bring to our busy practitioners in the rural parts of the state the latest procedures in the fields of obstetrics and pediatrics.

It is to be hoped that in the future any section of our state where as many as twenty doctors petition for this program their request may, and should be granted. Any county, or group of county societies, desirous of having postgraduate courses in other branches of medicine in conjunction with the courses now being offered may with small contributions from the membership enrich their knowledge a very great deal.

Your committee again wishes to reitterate the importance of our organized efforts in the responsibility for immunization for diphtheria and vaccina-

tion against smallpox for all babies and young children.

Our State Health Department has made clear to us their wishes in this work; namely, that the immunizations must be done and that they prefer us to do them, but they have to do them if we fail in our responsibility.

It is a well established fact that smallpox vaccination and diphtheria immunization should be completed by the end of the first year of life.

The committee condemns the present policy of nurses giving immunizations and vaccinations. Such procedure is held to lower the opinion the public has generally towards immunization procedures.

Your committee condemns the present plan of immunization as conducted by the various county health departments. Mass clinics of all types most certainly do not bespeak the highest type medical service.

Each county medical society for the entire state should work out its own program in cooperation with the county health officer. While all of our problems are fundamentally the same, the methods employed must vary with each community.

Your committee would recommend that each county society have a committee on public health problems; another on school health problems; another on medical relief problems, and that these be more or less standing committees. Such committees working in close cooperation and continuously will procure a satisfactory carrying out of the many varied problems in immunization and child health.

Because of our lethargy and indifferences towards these problems at the present time, public health agencies have a very definite basis for substantiating their activities.

As doctors we have been too closely concerned with gross pathology, too little concerned with positive health, which means much more than freedom from obvious disease. Other nations are making strenuous efforts to produce a generation fit for war. Surely we need no less a generation physically fit for the pursuits of peace.

A. E. AMICK, *Chairman.*

PUBLICATION COMMITTEE

Your Publication Committee would offer the following report:

On May 1, 1937, our balance on hand was $8,784.95. The total income for the year was $6,738.64. Further details of this are in Mr. Savage's report to the House of Delegates. The disbursements covering this period, also detailed in Mr. Savage's report, total $5,430.64, leaving the JOURNAL with a net profit of $1,308.00 for the year. To this should be added the increased cash value of the Fidelity contract in the amount of $360.00, making a total net profit for the year of $1,668.00, and leaving a net working balance on May 1, 1938, of $10,092.95.

During the last twelve months, we have published a total of ninety-eight scientific papers in the JOURNAL. Of these, out-of-state doctors have contributed twenty-four and our membership seventy-four.

During the year, we have published approximately fifty editorials. We have stressed medical economics and have made an effort to keep our members well informed on the various trends in medical economics, both state and national. Quite a number of these editorials have been reproduced in other medical journals throughout the country.

We have published two special issues of the JOURNAL; the Obstetrical number and the Syphilis number. Both of these issues attracted much attention and we have received many letters from leading physicians of the country, complimenting the JOURNAL on these two feature issues.

It is not the aim of your Publication Committee to make an enormous profit. We feel that it is better for the medical profession in West Virginia to publish a good JOURNAL at a small profit, than to produce an inferior publication, and have a larger cash balance. During the coming year, we shall follow this general plan.

Your committee takes this occasion to commend the efforts of the business manager, Mr. Joe W. Savage, upon his activities in behalf of the JOURNAL. Without his work, especially as to the advertising and the business side, we could not have presented nearly so good a report. We feel that the success of the JOURNAL, especially from the financial aspect is due very largely to his work, and accordingly make due acknowledgment.

Your committee feels very much gratified at the standing the JOURNAL has attained among the various state journals and pledges you every effort to keep it in the forefront of medical journalism.

Respectfully submitted,

WALTER E. VEST, *Chairman,*
J. HOWARD ANDERSON,
G. G. IRWIN,
CHESTER R. OGDEN,
C. A. RAY.

REPORT OF SYPHILIS COMMITTEE

When this committee was appointed some time ago it was suggested that the subject was so very timely that the committee should get very busy and show results immediately. We are sorry to say that we were unable to do this because of the magnitude of the problem. We feel this report should be considered only as a very preliminary one and that the committee has simply made a survey of the scope of our problem in regard to syphilis in West Virginia. We have seen fit to make certain recommendations, first in regard to public health measures to be carried out and secondly in regard to the activities of the private physician in the campaign against syphilis.

Some of these recommendations have been greatly abstracted for the sake of brevity in the summary which the committee is presenting. We would like to point out to the House of Delegates that copies of this report are available for all members of the Association at the booth in the exhibit room. The committee hopes that each man will avail himself of the opportunity of having a copy of the report to look over at his leisure.

In addition to that the committee has prepared a summary of a suggested treatment outline for various types of syphilis, and that also is attached to the report. This goes forth with the benediction of your committee, and that statement is made on the face of the treatment outline which we recommend to anyone who treats even one case of syphilis a year as a helpful guide.

We would like to say further that the director of the State Health Department, Dr. A. E. McClue, and Dr. Scott, of the Bureau of Venereal Disease, have worked with us in a very helpful manner and have done a tremendous amount of work which was necessary in preparing this original survey.

We offer the following recommendations for further activities in syphilis control:

In view of the fact that this problem is extremely extensive and that only the first few steps have been taken by your committee, we respectfully suggest to the president and Council of the State Medical Society that this committee be continued as a standing committee of the State Medical Society for at least five years. During this time the personnel should be changed gradually, replacing one man at a time so that each year new members may learn the work of the committee and can carry it forward in an uninterrupted fashion. We make the following suggestions relating to the activities of the committee in coming years:

1. The continuation of the exhibit at the State Medical Society meeting as an annual affair.
2. In order to achieve continued results, the guide to treatment of early syphilis should be sent out to each member of the society at least every two years for the next six years. Modifications and changes in the text should be made from time to time to keep it abreast of modern thought in the treatment of syphilis.
3. Further study in regard to the prophylaxis of venereal disease.
4. We recommend that a sub-committee be appointed to study the facilities for diagnosis and treatment of syphilis at the various state institutions.
5. It is recommended that the committee study the entire question of industrial surveys. It is especially urged that no such survey be started by any industrial concern without consultation with this committee and the Bureau of Venereal Diseases.
6. A carefully prepared pamphlet of instruction should be drawn up for distribution to the laity on a widespread basis.

Respectfully submitted,

W. M. SHEPPE, *Chairman*,
RAY M. BOBBITT,
A. H. STEVENS,
C. N. SCOTT.

COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work held meetings at Clarksburg, West Virginia, October 13, 1937, and at Parkersburg, West Virginia, February 10, 1938.

The following members in addition to the general committee attended one or both of the meetings:

Dr. C. W. Waddell, president; Drs. W. R. Goff and J. C. Pickett, representing the Surgical Section; Drs. F. R. Whittlesey and H. R. Sauder, the Medical Section; Dr. P. J. Condry, the Heart Association; Dr. Theresa Snaith, the Pediatric Section; Dr. Welch England, the Eye, Ear, Nose and Throat Section and Mr. Joseph W. Savage.

In addition to the preliminary ground work outlined at the two general meetings, much correspondence was necessary by each of the general and sectional committee members in selecting the speakers and discussants.

The committee made two changes from the general program as carried out in previous years. First, the date of the meeting was changed to July instead of an earlier date on which coincided with the com-

mencement at the various colleges. The general committee decided that a July meeting at White Sulphur Springs would be much more pleasant; whereas, in the city it would be unbearable on account of the heat. The second change by the general committee was selection of only nationally known teachers with some of our outstanding state members as the discussants. This was not intended as any reflection on the high calibre of our state members, but only to give all the members of our Association an opportunity of hearing some of the outstanding teachers.

We hope the above changes will meet with your approval.

We sincerely appreciate the full unselfish cooperation of each member of the sections.

Respectfully submitted,

Eugene B. Wright, chairman; James S. Clump, Russell C. Bond.

CANCER COMMITTEE

The plan adopted by the State Cancer Committee was to divide the state into districts according to counties. District one was in charge of Dr. R. B. Bailey, and was composed of the following counties: Hancock, Brooke, Ohio, Marshall, Marion, Tyler, Monongalia, Preston, and Wetzel. District two was in charge of Dr. W. R. Goff and it was composed of Pleasants, Doddridge, Ritchie, Wirt, Jackson, Calhoun, Gilmer, Roane, Braxton, Clay and Wood counties. District three was in charge of Dr. B. I. Golden and was composed of Harrison, Taylor, Barbour, Lewis, Upshur, Webster, Randolph, Pocahontas, and Tucker counties. The fourth district was in charge of Dr. W. A. Wallace and it was composed of Jefferson, Berkeley, Morgan, Hampshire, Mineral, Hardy, Grant and Pendleton counties. District five was in charge of Dr. A. H. Hoge and was composed of Nicholas, Greenbrier, Fayette, Raleigh, Summers, Mercer, McDowell, Monroe and Wyoming counties. District six was in charge of Dr. F. C. Hodges and Dr. B. H. Swint and was composed of Mason, Putnam, Cabell, Wayne, Lincoln, Kanawha, Mingo, Logan and Boone counties.

The primary function of the committee during the past year has been to furnish speakers for the campaign inaugurated by the Woman's Field Army of the American Society for the Control of Cancer. This Army is made up of women from the federated clubs. The purpose of this drive was to acquaint the public with the fact that cancer is curable in many instances when it is diagnosed and treated early. Their main objective of the Army was to list all men and women in the state, make the public cancer conscious and acquaint them with the very early signs and symptoms of cancer so that they would in turn consult their physician at a time when there was some hopes of a cure.

The drive of 1937 was handled by Mrs. John P. Harvey, the State Commander of the West Virginia Division, and she reports that 100,000 pieces of literature went out and was placed in the hands of the general public. There was a great deal of newspaper publicity and some radio talks.

A problem which will soon become of major importance is the establishment of proper facilities for the diagnosis and treatment of the indigent. That problem will have to be solved in the near future.

R. B. Bailey, chairman; W. R. Goff, B. I. Golden, W. A. Wallace, F. C. Hodges, B. H. Swint, A. H. Hoge.

COMMITTEE ON NECROLOGY

It is with deep regret and a sense of great loss that we, your Committee on Necrology, report the following deaths among our members:

J. C. Bignoy, Hinton.....June 12, 1937
F. J. Collison, Bluefield.....August 8, 1937
H. F. Nolte, Wheeling.....August 11, 1937
M. H. Maxwell, Keyser.....September 7, 1937
R. W. Sayre, Pt. Pleasant....September 18, 1937
D. L. Hill, Wickham.....September 19, 1937
William Gaston, Clarksburg....October 19, 1937
S. L. Cherry, Clarksburg.....October 21, 1937
D. C. Casto, Parkersburg.....October 24, 1937
B. W. Bird, Princeton.....November 4, 1937
H. A. Rosenthal, Clarksburg..November 12, 1937
J. L. Sameth, Welch.....December 23, 1937
S. J. Kell, Bluefield.....January 12, 1938
L. S. Smith, Monongah.....January 31, 1938
W. P. Bean, Keystone.....February 16, 1938
H. P. Linsz, Wheeling.....March 13, 1938
M. H. Proudfoot, Rowlesburg...March 21, 1938
A. H. Woodford, Belington.....April 16, 1938
L. J. Bernstein, Wellsburg.....May 4, 1938
M. H. Tabor, Crumpler.....May 16, 1938
C. M. Truschel, Wheeling.....May 22, 1938
W. S. Fulton, Wheeling.....May 30, 1938
B. F. Harden, Wellsburg.....June 3, 1938
McLeod Gillies, Charleston.....June 23, 1938

Requiescat in pace!

C. O. HENRY, *Chairman.*

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WALTER E. VEST
Editor-in-Chief
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

ASSOCIATE EDITORS:
J. HOWARD ANDERSON
Hemphill, W. Va.
C. A. RAY
Charleston, W. Va.
C. R. OGDEN
Clarksburg, W. Va.
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Charleston, W. Va.

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FAT EMBOLISM*

By PAUL H. REVERCOMB, M. D.
Charleston, West Virginia

FAT EMBOLISM may be a serious complication of fractures to the long bones and it occurs with sufficient frequency to warrant a thorough knowledge of its pathological mechanism and the resulting clinical syndrome. It has been estimated that one per cent of deaths after fracture are due to this condition. The subject has been one for much investigation during the past century, and many workers have stressed its serious association with fractures, but it is still not generally recognized as an important complication in traumatic cases. It is frequently misdiagnosed and the clinical term "fat embolism" has become one that is often carelessly and loosely applied.

The purpose of this paper is to point out that while fat embolism can only be diagnosed definitely at necropsy, nevertheless there is a fairly characteristic clinical picture which when familiar and kept in mind may clear up otherwise puzzling symptoms arising in the course of some traumatic cases, especially in those with fractures of the long bones of the lower extremities.

HISTORICAL REVIEW

A complete review of the voluminous literature which has accumulated on fat embolism will not be attempted. Reference is made to only a few of the outstanding articles. Those who wish a more comprehensive review of the work done on this subject are referred to the excellent article by Scuderi,[1] from which some of the following references are taken.

As early as 1836, Magendie, experimenting on the effects of oil injected into the circulation of animals, found that the larger globules were capable of obstructing arterioles and capillary vessels. Virchow (1862) found that injections of oil into the circulation of dogs produced dyspnea and in larger quantities, death. Autopsy revealed pulmonary edema. Muller (1860) was the first to observe fatty embolism in man while examining the retinal vessels of a man dying from chronic nephritis. Cohn in the same year observed fatty emboli in the capillaries of the

*Read before the Association of Industrial Physicians and Surgeons of West Virginia at Charleston, West Virginia, February 6, 1938.

brain and extremities of man. Neither Muller nor Cohn attached any pathological significance to these findings, but regarded them as incidental. Wagner (1865) reported 48 cases of fat embolism seen in man following fractures, acute suppuration of bone and chronic suppuration of different tissues. The first complete clinical account of the condition with review of all reported cases was made by Scriba (1880). He included 34 cases of his own. Also he pointed out that the fat globules produced symptoms by mechanical obstruction of the arterioles and capillaries which lead to small areas of infarction. His description of the clinical signs and symptoms is still accepted. Warthin[2] made an exhaustive review of the subject, adding original observations and cases of his own. Of the more recent works on fat embolism, the monograph by Vance[3] is outstanding.

INCIDENCE

Mild degrees of fat embolism are common in nontraumatic as well as traumatic cases, but severe fat embolism, except that resulting from the intravenous injection of oil, is always the result of trauma received before death. This may be of medicolegal importance (Vance[3]). Wright[4] states that Scriba found the condition in 52 per cent of all bodies coming to autopsy. Lehmann and McNattin[5] found it in 39 out of 50 cases. In a series of 246 necropsies, 164 associated with physical trauma and 86 nontraumatic, Vance[3] found of the traumatic group 20 showed very slight embolism, 34 moderate, 11 severe and three fatal. Of the nontraumatic cases seven showed slight fat embolism and 75 were negative. In a group of 59 cases of fracture of the lower extremity examined by Vance, 80 per cent were negative while 20 per cent displayed a serious degree of embolism. Wheelihen[6] cites Buerzer in a series of 100 postmortem examinations of patients who died after severe bone injury as finding only one case which did not show evidence of fat embolism. From these figures it will be seen that fat embolism is by far the most common form of embolism encountered and occurs frequently after trauma to fatty tissues, especially that in the shafts of long bones. The severe and fatal cases are exceptional and only these cases show recognizable clinical symptoms. It should be pointed out that the degree of embolism bears no direct relation to the severity of the trauma. Jarring of the skeletal system without fracture has produced fatal embolism (Watson[7]).

Fat embolism may occur following orthopedic operations and manipulations. Thus Clark[8] reported two fatal cases following forcible straightening of joints under anesthesia.

Trauma to other fat depots of the body, as the subcutaneous fat, and liver, has been reported as a cause of serious embolism, but these cases are rare.

Of the nontraumatic causes, second degree burns, poisoning with phosphorous, potassium chlorate, potassium cyanide, carbon tetrachloride and other toxic substances, have been reported (Clark[8]). Also, fatty emboli have been found in many cases of death from various natural causes. However, in the nontraumatic cases embolism is of the subclinical type (Vance[3]).

PATHOGENESIS

For fat embolism to occur there must be a rupture of the fat cells with liberation of free fat, which at body temperature is liquid. Also there must be open veins in the same region to receive the fat. Several factors may play a part in forcing the fat into the circulation. The increase in local tension due to swelling or hemorrhage is probably the most important of these, although Miloslovich[9] thinks venous suction more important than local increased pressure. Movement or manipulation of the injured part is undoubtedly an important factor.

In trauma to the long bones these conditions are ideally met with. First, there is an abundant supply of fat. Secondly, the ruptured Haversian veins are prevented from retracting by fibrous bands which firmly attach the vein walls to the bony channels through which they pass, and, thirdly, local pressure

can rise quickly due to the rigid bone, tense periosteum and overlying muscles. In injury to other fat depots such as the panniculus adiposus free fat may be liberated but the retraction or collapse of the ruptured veins usually prevents its admission to the circulation. Also, the exudate from a wound of soft tissues is less likely to accumulate under tension. These facts would appear to explain the frequency with which severe embolism occurs when the bone marrow fat is traumatized in comparison to trauma to other fatty structures.

The bones in young individuals do not contain a rich supply of fat, and that present is chiefly palmatin and stearin which at body temperatures are not as liquid as olein, the predominant fat in the bones of adults (Clark[8]). Apparently, for these reasons severe fat embolism is very uncommon in children.

Lehmann and Moore[10] believe the actual amount of fat which may accumulate at the site of an injury is probably not sufficient to produce fatal embolism. This opinion is based on the fact that dogs can tolerate large amounts of oil injected intravenously without showing symptoms. In vitro experiments conducted by these investigators revealed that histamine was capable of breaking up the emulsion of fat in normal serum. They then suggested the possibility of the fat arising from the blood plasma, the normal fine emulsion in the plasma being broken up into larger globules by products of destroyed tissue circulating in the blood. However, they were unable to obtain fat embolism in dogs after injection of histamine and extracts of necrotic muscle tissue.

PATHOLOGY

When absorbed into the circulation the liquid fat breaks up into coarse globules which first lodge in the pulmonary capillaries causing small areas of congestion with exudation into the alveoli. The emboli may be so numerous as to produce pulmonary edema. Many of the emboli are forced through the pulmonary capillaries to lodge finally in the small vessels of the brain, kidneys, heart and other organs.

The brain in these cases shows many minute areas of infarction in the subcortical white matter, the cut surface of which may have the appearance of having been sprinkled with cayenne pepper. The cortex is usually spared because of the rich anastomosis and because most of its vessels are too small to receive the fat globules. The heart is frequently involved. Microscopic examination shows the arterioles and capillaries plugged with emboli and small hemorrhagic areas scattered throughout the myocardium. The strength of the myocardium is undoubtedly reduced, which together with the increased resistance in the pulmonary circulation, soon leads to rapid and incompetent heart action. In the skin petechial hemorrhages may appear due to plugging of the cutaneous capillaries. Other organs reveal the emboli but their function does not seem to be very much impaired (Vance[3]).

SYMPTOMS

Clinically fat embolism has been divided into two types, pulmonary and cerebral. Most cases, however, show evidences of involvement of both organs. In the terminal stage the cerebral symptoms generally predominate.

The time elapsing between the injury and first appearance of symptoms may vary from four hours to nine days. The average is 48 to 60 hours (Vance[3]). Pulmonary symptoms usually precede those of cerebral involvement. The onset may be violent with dyspnea, cyanosis and pulmonary edema. Death in these cases is rapid and due to asphyxiation. This type is unusual and may be impossible to differentiate clinically from pulmonary embolism resulting from a thrombus. In the majority of cases the onset is gradual; following a period of quiescence the patient becomes restless, dyspenic and may complain of precordial pain. Cyanosis may or may not be present. The pulse rate is quickened and there is first a rise, followed by a drop, in arterial tension with increase in venous pressure. There is often a slight

cough, occasionally productive of blood-tinged sputum. Examination of the chest at this point may reveal a few moist râles in the lung bases, but is otherwise negative.

Evidence of cerebral involvement soon follows. There may be irritability, disorientation or delirium. Delirium is a frequent manifestation and is often so severe that restraint of the patient is necessary. Scuderi[11] cites LeCount and Gauss as noting it in 12 out of 14 proven cases of fat embolism. Not infrequently this symptom is mistaken for delirium tremens and treated as such.

The final stage is characterized by deep coma. Breathing becomes stertorous and at times of the Cheyne-Stokes type. There is a sharp rise in temperature to 103-106. Muscular rigidity and clonic convulsions sometimes develop as a result of cortical irritation. Signs of cerebral compression are absent (Vance[3]). It is during this final stage that petechial hemorrhages may appear, most often in the skin of the neck, shoulders and upper chest. The predilection for these areas is not adequately explained. They are not a frequent manifestation, but when present are an important aid in establishing diagnosis.

DIAGNOSIS

The possibility of fat embolism should be considered in every patient with fracture of the long bones (Vance[12]), and in every case after orthopedic operation or manipulation. Pulmonary, cardiac and especially cerebral symptoms occurring after a period of quiescence are strongly suggestive of this condition. The onset of coma with the appearance of petechial hemorrhages in the skin of the neck and upper chest, together with the presence of fat in the urine, constitutes a positive clinical picture.

Of the laboratory findings, the presence of fat in the urine is of diagnostic importance. This was first pointed out by Scriba, and although not present in all cases, has been considered by many as pathognomonic. Vance[3] states that urine in traumatic cases may show fat without there being clinical evidence of embolism. Watson[7] cites Riedel as finding fat in the urine of 42 per cent of all fracture cases he examined. Scuderi[11], on the other hand, in a study of the urine in 50 cases of fracture, failed to find it in a single instance. It is probable the liquid fat might be demonstrated in blood serum. In the first case reported in this article, Putschar found that a specimen of blood removed from the right side of the heart at autopsy and allowed to sit overnight, showed a heavy supernatent layer of fat (personal communication). Scuderi[11] has recently advocated the use of dark field examination to determine the presence of fat droplets in blood. He was able by this method to demonstrate free fat in the blood of dogs after the injection of oil. He also believes that röentgenograms of the chest may be of diagnostic value. Warthin placed much significance on the presence of large fat-containing cells in sputum, but this is no longer considered a reliable sign as it has been observed in other unrelated conditions.

In cases with head injury complicating fractures of the long bones, it is often impossible to differentiate clinically intracranial hemorrhage from cerebral fat embolism, and the two conditions may, of course, coexist. In cases of uncomplicated embolism, the absence of cerebral compression and neurological signs referable to a definite circumscribed lesion are helpful. Bronchopneumonia is sometimes confused with fat embolism, but the rapid onset of marked cerebral disturbance, appearance of skin petechia or lipuria should serve to differentiate the latter. Shock must also be ruled out. The latent period, usually of two to three days, before the onset of symptoms is more characteristic of fat embolism.

PROGNOSIS

The prognosis is grave and very few cases survive. Wright[4] reported a case following open reduction of a fractured femur and humerus showing large quantities of fat in the urine, which recovered. However, such reports are scarce in the literature. Coma,

hyperpyrexia and a progressive fall in arterial tension are ominous signs.

TREATMENT

As would be expected in a condition of such diffuse and massive involvement of the brain, lungs and heart, treatment offers little. Venesection has been advocated in the early stage to relieve distension of the right heart (Harris[13]). The administration of physiological saline solution intravenously has been thought to be of value. The rationale of this measure, however, is not clear. Stimulants as caffeine, coramine, etc., to boost the weakened heart action are generally used. Warthin proposed the intravenous injection of a two per cent solution of sodium carbonate with the idea of changing the fat to a soluble soap, but this has been discarded as useless.

A consideration of prevention of this condition when once developed is of much greater importance than treatment. All manipulation and unnecessary handling of severe fractures of extremities should be delayed long enough to allow the processes of repair to close the opened vessels. It has been advised that an Esmarch's tourniquet be applied above the operative field in orthopedic operations on the extremities, to be released only gradually after operation (Clark[8]). Immobilization after operation is also important. Harris[13] believes that fat embolism following operation might be prevented by draining the wound for 24 hours.

CASE I (From the records of Dr. W. Putschar)

A white male, 63 years of age, was admitted to the Charleston General Hospital on the service of Dr. H. A. Swart, December 4, 1937, having been struck by an automobile one hour prior to admission.

Examination showed fractures of both tibias, the one on the right being compounded, and multiple lacerations of scalp. He was conscious and coöperative, pulse 120, blood pressure 120/60.

Glucose five per cent in saline and gas-tetanus antitoxin were administered. The day following admission his condition became worse. He did not respond and was unable to take anything by mouth. Neurological examination by Dr. A. A. Wilson showed the patient to be very stuporous. He did not react to pain. The pupils did not respond to light. There was no paralysis. Reflexes were normal. The spinal fluid showed 1,037 red cells and three white cells. His temperature at this time was 102.5, pulse rate 140. He suddenly became dyspneic and died shortly afterward.

Autopsy was performed by Dr. Putschar. Both bones of the left leg were fractured in the upper third with the fragments overriding. There was a second fracture of the left tibia in the lower third. The right leg showed a compound fracture of the tibia and fibula. The wound was surrounded by hemorrhages and had been closed by sutures. There were fractures of the left fourth and fifth ribs.

EXAMINATION

Examination of the heart revealed marked dilatation of the right ventricle and auricle, and slight dilatation of the left ventricle. The coronary arteries were patent and unchanged. On section the left lung tissue was found to contain a moderate amount of foamy, bloody fluid. The lower lobe of the right lung was somewhat firm and contained a large amount of bloody fluid. There were several small hemorrhages in the mucosa of the stomach.

There was a slightly depressed fracture of the skull in the left parietal area with a slight extradural hemorrhage. On section, the brain showed scattered small petechiae, especially in the left temporal, parietal and thalmic regions.

Microscopic examination of frozen sections from the upper lobes of both lungs showed a very massive fat embolism, many of the smaller arteries and capillaries being filled with fat. The alveoli contained edema fluid. Sections from the right lower lobe likewise showed fat emboli to a lesser extent. Sections from the cerebrum showed multiple fat emboli in the grey and white matter; the larger emboli in the white matter were sur-

rounded by petechial hemorrhages. The liver arterioles showed fat emboli. The kidneys showed multiple fat emboli within the arterioles and the glomerular loops. The heart muscles showed scattered emboli and droplets of fat within the protoplasm of the muscle fibers.

Dr. Putschar's conclusion from this examination was that massive fat embolism in the lungs and brain played a very important rôle in bringing about death.

CASE II

The following case is included as a probable example of fat embolism though definite evidence is lacking.

A white, 57-year-old coal miner was admitted to the Kanawha Valley Hospital on Dr. David Hill's service, July 30, 1937. He had been struck by a piece of falling coal the same day and sustained a compound fracture of the left femur in the lower third. There was a slight contusion of the scalp in the occipital region, but no other evidence of head injury. At the time of examination he was conscious and rational but showed a severe degree of shock. Systolic blood pressure was recorded at 94, diastolic blood pressure could not be obtained.

The patient was given intravenous glucose five per cent in normal saline and his condition picked up considerably. The next morning his respiration became irregular and labored. He became very restless and shortly afterward lapsed into a coma. His temperature at this time was 105 and there was Cheyne-Stokes respiration. A lumbar puncture was done and the spinal fluid was found to be clear and under normal pressure. Several small hemorrhagic areas appeared in the skin of the right arm and shoulder and another in the midscapular region of the back. Blood sugar and nonprotein nitrogen determinations showed them to be within normal limits. Blood count revealed 3,650,000 red cells 75 per cent hemoglobin, 18,000 white cells with 82 per cent neutrophiles. Urinalysis showed a light cloud of albumen and a few granular casts.

The patient expired about 36 hours after injury. Permission for autopsy was not obtained.

In neither of these cases was the diagnosis of fat embolism considered before death. No determinations were made for the presence of lipuria. The clinical observations, while not in complete detail, do give fairly typical pictures of this condition. In the first case there may be the question of intracranial hemorrhage. However, autopsy revealed this was of slight degree and not sufficient to explain the coma leading to death. The onset of coma in the second case was very puzzling to the medical attendants. Shock had been effectively combatted and there was no evidence of intracranial damage. The only satisfactory explanation for the symptoms in this case seems to be fat embolism.

CONCLUSIONS

1. Fat embolism is a probable serious complication of fractures to the long bones and of orthopedic operations.

2. In severe cases the clinical sequence is fairly characteristic and with recently developed methods of diagnosis more cases should be recognized before death.

3. Treatment is usually of no avail in the severe cases. Preventive measures offer more hope in combatting this condition.

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THE PEDIATRICIAN AND THE SURGEON*

By JOHN T. THORNTON, M. D.
Wheeling, West Virginia

CLOSE coöperation between the surgeon and the internist has been urged always. Coöperation between the surgeon and the pediatrician is even more essential, for few surgeons have a comprehension of the profound differences between the adult and the child, differences that must be appreciated if the best results are to be obtained in the surgery of infancy and childhood. Only in the largest cities are to be found surgeons who limit their work to children, so that the vast majority of children in need of surgical attention must be served by the general surgeon. Moreover, some surgeons are better fitted than others to operate upon children, possessing a gentle touch in the handling of tissues, ability to work rapidly and with precision and dexterity, and a true appreciation of the limits of endurance of the young patient. It would be well, were it at all feasible, that in any medical center all of the surgery of childhood be entrusted to two or three men of ability rather than divided among a greater number. However, I fear that altruism in the medical profession has not reached so high an altitude.

SELECTION OF SURGEON

Bearing in mind the facts outlined above, it seems to me that it is the duty of the pediatrician to make a careful selection of the surgeon to whom he will entrust the life of his little patient, in no case yielding to the dictates of the parents in this important matter.

Also the pediatrician alone should be responsible for the diagnosis and for decision as to whether or not operation is indicated. I do not believe that the surgeon is as well qualified as the pediatrician to make the decision. The surgeon's viewpoint is based for the most part upon experience with adults in whom symptoms and signs are usually well marked and easily elicited and in whom also the results of delay are not so serious. I am particularly wary of the ultraconservative surgeon, the one who takes pride in operating only in the presence of well-defined physical signs. Waiting for well-defined physical signs in children may mean waiting too long with either a fatal outcome or a stormy and prolonged convalescence. Even though this conservatism may seem justified at the moment, it is not always ultimately best for the child. For example, I recollect the case of a child in the hospital with a diagnosis of appendicitis. The surgeon refused to operate, and the child recovered from the attack, as will approximately 80 per cent of such cases. A year later the child had a second attack, fell into unskilled hands, was operated upon, and died. Far be it from me to suggest the performance of any unnecessary operation. The points I wish to impress are that with children it is many times exceedingly difficult or impossible to arrive quickly at an absolutely certain diagnosis, that when in doubt it is wise to operate promptly, and that the surgeon should yield to the pediatrician's best judgment.

PEDIATRICIAN IN CHARGE

When operation has been decided upon, it is all too common for the surgeon to take entire charge of the patient, the pediatrician simply standing on the sidelines. Unquestionably both the preparation for operation and the after treatment should be in the hands of the pediatrician, the surgeon standing on the sidelines, awaiting the call for advice or assistance.

Much might be said about preparation and after treatment. Time permits consideration of only the more important matters. Of

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course, operations of emergency do not permit any special preparation. When the operation is one of election, preparation should be thoroughgoing, disregarding considerations of economy.

Remember that children, including infants, are affected unfavorably by change in environment, excitement, starvation, and purgation. Also in hospital wards there is grave danger of cross infections, particularly from diarrheal and respiratory disorders.

HOSPITALIZATION IS WISE

Hospitalization for two or three days before operation, in order that the child may become accustomed to the change in surroundings and the ministration of the nurses, is a wise precaution. During this period it is my custom to secure sedation by means of sodium bromide and elixir of luminal, giving an infant of one year sodium bromide, grains five, and elixir of luminal, dram one, every four to six hours. The fluid intake is carefully estimated, and at least a quantity of fluid equal to one-sixth of the body weight should be given daily, preferably by mouth but, if necessary, by subcutaneous or intravenous injections. A diet is prescribed low in fats, high in carbohydrates, with a reasonable amount of proteins. This adjustment of diet is made in order to store glycogen in the liver and to guard against the development of postoperative acidosis. No starvation is permitted; feedings are given up to four hours before operation, the last two or three meals consisting of easily digestible carbohydrates. For the last feeding orange juice with sugar is suitable. If a laxative is indicated, it is given never less than forty-eight hours before operation; usually an enema is given eight to twelve hours before operation.

If sufficient sedation has not been obtained by bromide and luminal, a dose of nembutal, about 1/30 grain per pound of body weight, may well be given about three-quarters of an hour before beginning the anesthetic. This may be given by rectum, though it seems to me preferable that it be given by mouth dissolved in orange juice. Certainly a basal hypnotic renders the induction of anesthesia much less distressing. I am opposed to the giving of morphine or codeine before operation even to older children. This is simply my own opinion, which is in opposition to the general practice of anesthetists. Robson, an undoubted authority, advises strongly the administration of morphine to children. However, I do advocate the use of a preoperative hypodermic injection of atropine in a dosage appropriate to the age of the child, remembering that children tolerate atropine remarkably well, so that a relatively large dose may be administered safely. On the other hand, Robson prefers not to give atropine. Gastric lavage an hour before abdominal operation is indicated in many cases and always in cases of pyloric stenosis.

OPERATIVE SUGGESTIONS

Regarding the operation itself, I respectfully make the following suggestions to the surgeon. In the first place, it is most important to conserve the body heat of the child. The temperature of the operating room should be 75 degrees Fahrenheit or a little higher, and the unexposed parts of the body should be protected by wrappings and kept warm by careful application of external heat. Operate as rapidly as possible consistent with careful and thorough workmanship. Let the surgeon's touch be gentle, avoiding all unnecessary traumatism of tissues. Conservation of body heat, rapidity, and gentleness in operating protect the patient from surgical shock. I have seen operators become so engrossed in the mechanics of the operation as to forget entirely that children stand prolonged operations poorly.

As regards the treatment after operation, let me repeat that this should be directed by the pediatrician, who should call upon the surgeon for aid when necessary.

Children as a rule do not tolerate starvation, which will produce in a relatively short time acetonuria and eventually an acidosis of greater or less severity, sometimes of such severity as to cause death. Therefore, I insist that children be given carbohydrates as soon

after operation as nausea and vomiting permit, of course, beginning with small quantities, increasing gradually and as rapidly as possible. By all means see to it that the fluid intake is sufficient. This should approximate one-sixth of the body weight in twenty-four hours. It is convenient to divide the day into periods of six hours each, specifying how much fluid should be administered during each period. In case this amount is not taken and retained by mouth, the remainder should be given parenterally, by proctoclysis, subcutaneously, or intravenously. Either five per cent glucose solution or normal salt solution may be administered by these routes. In recent years a great hue and cry have been raised by certain scientific investigators about the terrible and disastrous results following the production of edema through the use of normal saline injections. It is true that many times I have seen infants and children develop edema after several days of saline injections, but never have I seen any harm resulting therefrom. The edema is less apt to occur when an adequate amount of protein food is being assimilated. In any case it subsides quickly after injections are discontinued.

TREATMENT TO AVOID COMPLICATIONS

Pain, restlessness, and loss of sleep exhaust the patient, retard recovery, and predispose to complications. Therefore, these should be combatted by appropriate treatment. For pain morphine or codeine is indispensable and should not be withheld, remembering that quite small doses are frequently effective. For restlessness and insomnia hypnotics are indicated. Usually I continue the bromide and luminal mixture given before operation. In this connection I wish to state emphatically that the use of opiates should be confined strictly to the relief of pain and should not be given for the relief of restlessness and insomnia as is the practice of hospital internes and many surgeons. There is one exception—the use of opiate to inhibit intestinal peristalsis after operation for intussusception and certain other grave abdominal conditions.

When the preparation for operation has been adequate and the after treatment carried out intelligently, development of acidosis is exceptional. However, when acidosis does occur, it should be recognized and treated promptly. Usually one or more intravenous injections of five per cent glucose solution will relieve the situation. It has been my impression that the simultaneous administration of insulin (one unit of insulin for every two grams of glucose) is helpful and certainly not harmful. The quantity of solution given each time should be 20 to 25 c.c. per kilogram of body weight. The solution should be injected slowly, at least one hour for 250 c.c., if complete utilization of the glucose is desired. As ordinarily given a considerable proportion of the glucose spills over through the kidneys, and for that reason there would seem to be no advantage in using a solution more concentrated than a five per cent solution, which has the advantage of being isotonic. Small enemata of five per cent glucose and soda are also helpful, if retained, and they are often retained when given slowly.

As a rule vomiting after operations on children is not especially severe. The treatment advised for acidosis usually controls vomiting. Should it become persistent, gastric lavage is indicated. It may be necessary to institute continuous drainage of the stomach.

Occasionally an infant will develop within a few hours after operation a hyperpyrexia which does not yield to measures ordinarily employed. This hyperpyrexia may in itself be exceedingly dangerous and must be controlled. I have seen it especially after operations for harelip and cleft palate. The cause is probably some disturbance of the heat regulating center in the brain. Certainly it is not of infectious origin.

KERLEY COOL PACK

The very best method of treating this condition is the continuous cool pack described by Charles G. Kerley of New York in 1907. The method is so valuable, not only for the control of hyperpyrexia following operation but also that due to any cause, that I shall

take the liberty of describing briefly the procedure.

The bed is protected by a rubber sheet. A large Turkish bath towel, with slits cut for the arms, is folded around the child, extending from the shoulders to the middle of the thighs. A hot water bottle is placed at the feet and the child covered with a woolen blanket. The towel is moistened with water at a temperature of 100 degrees F. and after five minutes again with water at 95 degrees F. The gradual reduction of the temperature of the pack is continued until it reaches 80 degrees F. It should be maintained at this temperature by moistening the towel every ten or fifteen minutes. Usually no further reduction will be necessary, though it may be reduced as low as 70 degrees F. The child's temperature should be taken by rectum every half hour, and when it reaches 102 degrees F., the child should be removed from the pack. If the fever again rises rapidly to 104 or 105 degrees, it is well to keep the child in the pack continuously. By gradually reducing the temperature of the bath there is no shock to the patient which might be caused by sudden contraction of superficial blood vessels and congestion of internal organs.

SURGICAL ANESTHESIA

In recent years surgical anesthesia has become quite a complex subject, so complex that well trained specialists in anesthesia are regarded as essential to the modern hospital. The ideal anesthetist is a physician who specializes in this branch of medicine, and I hope that it will not be many years before every hospital may have at least one such specialist on its staff.

Children present their peculiar problems in anesthesia as in everything else. The fundamental difference between children and adults as concerns the choice and administration of anesthetics is the relatively high normal metabolic rate in childhood, which is considerably increased by excitement, physical pain, and fever. Therefore, to produce unconsciousness and relaxation in children requires a relatively much larger dose of the anesthetic than in adults, while the margin of safety is not so great. It is easy to see how essential preliminary sedation is for children, since thereby the necessary dose of the anesthetic is greatly lessened. Moreover, it eliminates fear of subsequent anesthesia, should that become necessary. It is not to be expected that the pediatrician should be an anesthetist. Nevertheless, he should possess such a knowledge of the various general anesthetics as to make a proper choice for the patient.

Perhaps a few observations on the relative value of various anesthetic agents may be helpful in making the selection.

USE OF NITROUS OXIDE

It seems that nitrous oxide is gradually losing favor as an anesthetic for children, certainly for those under four years of age. It may be used for operations of short duration, such as incision of the ear drum, opening superficial abscesses, etc. It has a distinct place in the x-ray room by reason of its noninflammable property. Nitrous oxide should not be given unless the stomach is entirely empty of food, since the child may attempt to vomit while the jaws are tightly clenched by muscular spasm.

Probably ether is still the most generally used anesthetic. In childhood it has no particular contraindication other than diseases of the respiratory system. Induction by nitrous oxide and oxygen or by ethyl chloride (best given by the drop method) may be employed, though if a basal hypnotic has been given in effective dosage, I can see no particular reason why either method of induction should be used. The administration of a number of drugs preliminary to anesthesia seems unnecessary and smacks of polypharmacy. Nembutal plus morphine plus atropine plus ethyl chloride plus ether is a sequence often followed. Pity the poor child! Add a sugar-teat moistened with dilute whiskey, and I am sure the surgeon could operate without the addition of ether.

Avertin is quite suitable for children but must be given in relatively larger doses than for adults. From 125 to 200 mgs. per kilo-

gram of body weight is the amount advised. Here again is seen the influence of the increased metabolic rate of children. Personally I should hesitate to give more than 150 mgs. Under no circumstances should morphine be administered with avertin before operation, nor should it be given after operation until the child has recovered thoroughly from the anesthesia, since the respirations may be seriously depressed by the combined action of the two drugs.

Cyclopropane is being used more and more as the anesthetic of choice for children. It is said by Robson to give excellent results, especially for prolonged operations attended by surgical shock, such as operations upon bones. However, it is not without danger, and its administration should be entrusted only to an anesthetist skilled in its use and capable of dealing with the possible complication of laryngeal spasm.

In conclusion the points that I wish to emphasize regarding the surgery of childhood are:

1. It is the duty of the pediatrician to make the diagnosis and to decide whether or not operation is indicated.

2. It is the duty of the pediatrician to prepare the child for operation and to direct the postoperative treatment.

3. It is the duty of the pediatrician to select the surgeon best suited to perform the operation.

ANALGESIA IN LABOR*

By ORLANDO S. REYNOLDS, M. D.
Franklin, West Virginia

SINCE my theme is analgesia, not anesthesia, it behooves me to differentiate between the terms. Admittedly they tend to merge and even overlap, but in this paper I shall consider analgesia as the partial or complete absence of sensibility to pain, and anesthesia as the partial or entire loss of all sensation. Webster makes this simple differentiation and I should like to point out the fact that the common anesthetics, ether, chloroform, nitrous oxide, etc., may be classed an analgesics when they are not pushed to complete loss of all senses.

My aim is to determine the most applicable methods of obtaining obstetrical analgesia, both in home and hospital deliveries. I believe that in this country, as in Europe, most births occur in the homes and therefore I shall stress especially domicilary analgesia. Ideally, of course, every delivery should be made in a first class hospital but actually such a condition does not exist and probably never will. I feel that if we as practicing physicians make ourselves dependent upon hospital facilities to offer relief to our patients we shall fail miserably. The so-called "local medical doctor" still practices more medicine and delivers more babies than all the hospitals in the country. Hence, I believe that obstetrical analgesia, like charity, should begin in the home.

Within the last 80 years, and especially in the last 20, women have changed their views in regard to the pain of parturition. Formerly it was considered as a divine hardship visited upon womankind as punishment for the sin of conception—or as a trial to test their physical and moral endurance and ability to raise children. Now it is considered merely as an unnecessary physical ordeal and women are demanding relief.

In attempting to meet this demand the problem must be carefully studied from at least three distinct angles—the maternal, the fetal, and that of the obstetrician. The ideal

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method of producing obstetrical analgesia should meet the following requirements:

1. No increased risk to mother or fetus.
2. No interference with normal labor.
3. Complete relief of pain.
4. Simple, inexpensive, nontechnical materials and administration.

Obviously, there is no form of analgesia which measures up to these standards. Jung pointed out years ago that analgesia in any form increases the risk and the cost to the mother. It is equally true that any drug administered for a systemic effect on the mother will be transmitted, to a greater or lesser degree, to the fetus. The problem becomes more and more complex when one attempts to harmonize safety with therapeutic efficiency, simplicity and lack of interference with normal labor. The task is a real one and it must be approached intelligently and cautiously, as Montgomery points out in his article on sudden death, if we are to provide a form of analgesia which will be satisfactory even though not ideal.

STUDY OF THE INDIVIDUAL

In the first place the physical and emotional traits of the individual patients must be well studied and thoroughly understood.

Secondly, a full knowledge of the pharmacologic and clinical action of the proposed drugs is essential.

Thirdly, the medication must be adjusted to the needs of the individual case. The patient is not to be adjusted to a routine shotgun dose.

Fourthly, an accurate knowledge of the mechanism of labor and the patient's progress at all times is required.

If that, then, is the approach, let us, at this point, take stock of our resources and see just what helpful material is available and what we have to work with. There are plenty of patients demanding relief, so that our activities need not be restricted to theorizing. The U. S. P. and N. N. R. offer many drugs, some with and some without sufficient age and clinical experience behind them to have been well standardized. Unfortunately it seems to have been true, with certain exceptions, that the longer a drug has been used the more outstanding the objections to it have become in this particular field. At present the spotlight distinctly favors the newer drugs. Here the danger of clinically unfounded overenthusiasm must be borne in mind. No one drug has been accorded even a semblance of universal favor as an obstetrical anodyne and the trend now is in the direction of finding the happiest combination of two or more therapeutic agents. The current and recent literature is heavy with reports, regrettably conflicting in many instances, of the various degrees of success obtained with this or that combination of drugs. Although the profession as a whole is obviously very much interested in developing and standardizing obstetrical analgesia, many individual investigators seem to be afflicted with a peculiar form of jealousy or a narrow mindedness. After covering a considerable portion of the literature of the last few years one is struck by the poverty of truly unbiased, well balanced, scientific papers on the merits of the various forms of analgesia in the hands of different doctors. Direct conflicts in claims of the advantages and disadvantages of any one method occur with pathetic frequency. Unbiased clinical comparisons are rare and because of the rarity I should like to mention the excellent report of Irving, Berman and Nelson. British and American obstetrical clinicians seem especially prone to incongruous conclusions. However, there are certain benefits to be derived from a survey of the literature.

BENEFITS FROM THE LITERATURE

First: It becomes evident that no one routine method may be applied successfully to every individual patient.

Second: By wide reading one may get a fairly accurate conception of the relative disadvantages, and, to a somewhat lesser degree, the advantages of each anodyne. Then by properly correlating such conceptions with the characteristics of each separate patient one may work out the form or forms of analgesia most applicable to one's own circumstances

and perhaps contribute something to the ultimate standardization of successful analgesia by publishing his results.

In presenting a consideration of the individual forms of analgesia I shall try to do so in as unbiased a manner as my reading and limited experience will permit.

ETHER

Although commonly considered as an anesthetic, ether in small quantities may be an analgesic. It found its first obstetrical use in December, 1845, by its discover, Crawford W. Long in delivering Mrs. Long of their second child, born at Jefferson, Georgia. Ether remains today as one of the safest inhalation anesthetics available and is frequently used as such in the latter part of the second stage of labor, especially in hospital deliveries. As an analgesic, however, it has many disadvantages. It is unpleasant to take. It causes considerable upper respiratory irritation and general excitement. It increases vomiting. It inhibits normal labor contractions in direct proportion to the dosage used. In subanesthetic doses it is not particularly effective in relieving pain. Its inflammability may be dangerous in the home. It tends to anesthetize the baby as well as the mother. It is distinctly contraindicated in diabetes and upper respiratory infections. Its use as a rectal instillation will be taken up with Gwathmey's technique. As a true analgesic inhalation ether has few advantages, if any. As a complementary anesthetic it is very useful in the second and third stages of labor.

Chloroform like ether is commonly regarded as an anesthetic, but its use as an obstetrical analgesic extends from Simpson's use of it in 1851, to the present and it will probably continue to be used well into the future. It has undoubtedly been used in more deliveries than any other form of analgesia in the world. The following advantages are claimed for it: 1. Relative safety for mother and baby. 2. Universal applicability. 3. Noninflammability. 4. Good perineal relaxation. 5. Easily controlled. 6. Relatively easily administered. 7. Small bulk and low cost. 8. Pleasant and relatively effective as an anodyne.

Its disadvantages have become more evident in the last ten years and include: 1. Danger of cardiac syncope. 2. Danger of acute yellow atrophy or delayed liver damage when used too long. 3. Danger of overdose when not administered by experienced person. 4. Danger of fetal narcosis and evil after effects. 5. Not applicable to first stage. 6. Interferes with uterine contractions in direct proportion to depth of anesthesia. 7. It is contraindicated in toxemia, exhaustion, shock, inanition, cardiopathy and diabetes. Chloroform is still used extensively in Europe and among the country practitioners in America but it has lost favor in American hospitals, almost to the point of discontinuance, chiefly because of its tendency to liver damage. In England the Junkers inhaler and to a lesser extent the 20 minim capsules of Rivett are used in its administration. Queen Victoria is said to have given birth to her seventh child under chloroform analgesia.

NITROUS OXIDE AND OXYGEN

Gas and oxygen first came into prominence as an obstetrical anodyne with the report of Webster, Lynch and Davis in 1915. Since that time its use has spread throughout the world and it has been acclaimed generally as a safe and effective analgesic when properly administered. Unfortunately several extraneous factors limit its use. The apparatus is bulky, the gas is expensive, and a well trained anesthetist is required to administer it throughout labor as long as relief is required. Hence its use is limited to hospitals where it is administered to financially independent patients and then usually only through the second stage. Excessive cyanosis must be avoided lest the fetus become asphyxiated in utero. Gas and oxygen, in contrast to ether and chloroform, does not inhibit uterine contractions. As an analgesic it is administered with the onset of each pain. Four or five deep inhalations of a 85-15 per cent mixture are usually sufficient to carry the patient through a contraction. Between contractions no med-

ication is given. The gas may be fortified with a small amount of ether and pushed to full anesthesia as the head is being born. Nitrous oxide and oxygen are frequently used to fortify other analgesias in the latter part of the second stage of labor. It is said to cause no increased fetal respiratory depression, although Irving claims that only 80 per cent of the infants delivered with gas breathe spontaneously in the first minute of life, in contrast with the normal 98 per cent of spontaneous breathers.

TWILIGHT SLEEP

This combination of morphine and repeated injections of scopolamine is attributed to Steinbuckel in 1902. In the 25 years following its introduction it gained quite a hold on the public's fancy, largely because of the dream-like amnesia induced by the scopolamine. From the point of view of the patient's comfort alone this method is ideal. The morphine, given early in the first stage, relieves the pain of the intermittent uterine contractions and substitutes a sense of euphoria. The scopolamine, pushed then to complete amnesia, blots out any memory of subsequent unpleasant events until well after the baby is born. For this reason periodic testimonials still appear in the popular home magazines proclaiming the virtues of this type of analgesia. But as a matter of fact twilight sleep has been almost entirely discarded by the medical profession, and for very good reasons.

1. It has been pretty well established that morphine, or any of its derivatives, causes fetal respiratory depression and apnea, especially when administered within four hours of the birth of the infant. Premature infants are particularly susceptible to morphine.

2. If scopolamine medication is sufficient to give complete amnesia a tendency to delirium is present, and patients occasionally become maniacal requiring not only constant attendance but also actual physical restraint.

3. Normal labor is interfered with. The patient's coöperation may be lost and the second stage is prolonged 30 to 60 minutes with an increase in operative deliveries.

The method finds its chief use now in certain parts of England and in a few very excitable persons, chiefly primipara, in this country, whose nervousness must be temporarily allayed by morphine to prevent reflex inhibition of the normal uterine contractions.

Morphine and its derivatives are still used very extensively in hospital obstetrics in England, where they are claimed to exert less depressive effect on the fetal respiration than the barbiturates. In this country morphine is still used by many doctors, though the tendency is to use it in a greatly diminished, unrepeated dose and to remove it further and further from the actual time of delivery. Lull has expressed the belief that it will soon be abandoned as an obstetrical anodyne. Morphine has a tendency to stop labor if given very early in the first stage and should never be given during the second stage or to multipara in any stage before delivery.

Scopolamine in therapeutic doses is said to be harmless to mother or fetus. It exerts a weak analgesic and a strong soporific and amnesic action. It may cause delirium. It increases contractions somewhat, shortens labor slightly, decreases bleeding, and may be safely prolonged. The chief disadvantages of a moderate overdose of scopolamine are that the patient's coöperation may be lost during labor and restlessness may become extreme.

GWATHMEY'S ANALGESIA

This technique was developed in 1923, at the New York Lying-In Hospital. Originally it consisted of one-fourth grain morphine subcutaneously in the middle of the first stage of labor, followed by one, two, or three intramuscular injections of two c.c. of 50 per cent magnesium sulphate solution at 20 to 60 minute intervals. Then with the onset of the second stage the following formula was injected slowly into the rectum after a cleansing soapsuds enema:

Quinine, gr. 20; alcohol, m. 40; ether, oz. two and one-half; liq. petrolatum or olive oil, q. s. ad. oz. four.

In very long labors the rectal instillation or the magnesium sulphate could be repeated as necessary. Since 1923 this procedure has undergone much discussing and many modifications. It has been used in well over 20,000 confinement cases with probably better than a fair degree of success but at present it cannot claim a very widespread and general popularity. The many claims of its safety, efficiency, simplicity, economy, universal applicability and favorable results by Gwathmey and other enthusiasts, have apparently fallen on deaf ears in the medical profession or have been denied by absolutely contrary claims of more disinterested users, notably Hatcher. McCormick designed an apparatus to facilitate the rectal instillation and then put up a great sales talk entitled, "Popularizing Ether-Oil Rectal Analgesia in Obstetrics." Here he so amended the technique as to make it almost unrecognizable, retaining only the original rectal instillation. (McCormick apparatus preferred) and substituting oral sodium pentabarbital for the morphine and magnesium sulphate. His modification undoubtedly has its advantages, but personally I doubt if any form of rectal instillations will attain widespread popularity outside of hospitals, in spite of their efficacy. Although infrequent, the occasional ejection of rectal medication is extremely annoying and consequently the popularity of this route will likely never be overwhelming. Ether by rectum, when mixed with oil, separates and is absorbed very slowly and exerts a marked sedative effect. For this reason this portion of Gwathmey's technique is still used at times for controlling restlessness.

USE OF MAGNESIUM

Magnesium sulphate, administered intramuscularly, is an effective and, so far as we know, harmless depressant of the central nervous system. It is variously claimed to be synergistic with morphine, scopolamine and similar drugs. However, it has no great potency as a specific anodyne.

The quinine included in the rectal formula is supposed to exert a mild oxytocic action to offset any depression of uterine contractions by the ether. Actually the quinine is quite variable and inconstant, often resulting in nothing more than a moderate tinnitus.

The alleged advantages and disadvantages of the Gwathmey technique have been so numerous, extensive and conflicting in the literature of the past ten years that I shall not attempt to cover them here. Suffice it to say that some men have obtained fairly good results and others have been so disappointed that they found it their pleasure to go to great length assailing the method. Its original form is not particularly popular now.

THE BARBITURATES

Within the past ten years derivatives of barbituric acid have attained considerable prominence as soporifics, analgesics, hypnotics, amnesics and antispasmodics. There are at present approximately 1001 different forms available, the most common of which are veronal, sodium amytal, pentobarbital, nembutal, phenobarbital or luminal, pernocton and dial. Therapeutically their action seems to be restricted to the central nervous system, without affecting the pulse, respiration or blood pressure, except when administered intravenously. They may be administered (with certain exceptions) orally, intravenously, intramuscularly, or rectally. The oral route is favored. In general the toxic dose is at least four or five times the therapeutic dose and the amnesic dose is only about half that required for complete analgesia. Because of their relatively pure nervous system sedation, the barbiturates have lately come into popularity in obstetrics and the dose has been fairly well standardized. In full doses the barbiturates diminish or abolish the reflexes but do not interfere with labor once it is well established, tending, if anything, to facilitate cervical dilatation. The chief criticisms of these drugs are:

1. They may cause restlessness, which rarely becomes excessive, so that constant supervision by a capable attendant is required.
2. When used alone excessive doses are necessary to attain complete analgesia.

3. English critics claim that fetal oligopnea occurs in one-third the cases and that this is more serious than with morphine. This has never been shown in this country and no fetal deaths have been attributed to maternal barbiturate medication.

Restlessness seems to be minimal under pentobarbital. Since excessive doses are required for full analgesia, the more easily attained amnesia is aimed at, and to this end scopolamine is combined with the barbiturate. If restlessness becomes excessive rectal ether may also be used, or magnesium sulphate intramuscularly. Morphine should not be added because its synergistic action is very strong with these drugs.

CLINICAL RESULTS

Considerable experimentation has been done to distinguish differences in clinical results with the various forms of the barbiturates and the various routes of administration. I shall dismiss the latter point by saying that all routes are about equally effective, the intravenous giving the earliest action and the oral being the simplest, and favored in the literature. Luminal works slowly as an anodyne and sedative, causing little excitement, but is more prone to cause an idiosyncrasy rash when given in full doses. Sodium amytal elicits too much restlessness and favors amnesia rather than analgesia, though its effects are more prolonged and its toxicity is more remote. Pentobarbital causes only moderate restlessness, gives a fair degree of analgesia as well as amnesia, is more rapidly excreted and hence has less tendency to a cumulative toxicity. Intravenous pernocton causes excessive restlessness and a fairly marked fall in blood pressure.

Results following rather widespread use of pentobarbital and scopolamine with very light anesthesia for the terminal part of the second stage, have been excellent, approximately 80 per cent complete amnesia and 20 per cent nearly complete, without any serious attributable complications. Irving, however, does not recommend this form of analgesia for home deliveries, because of the restlessness and the fact that constant supervision is required. Personally I feel that it is applicable to the home because the restlessness is seldom excessive and is readily controlled. Furthermore, all forms of analgesia require constant supervision, though not necessarily constant attendance of the doctor.

The dosage of pentobarbital or similar barbiturates, and scopolamine, though subject to individual variation to suit the patient's need, is as follows: When discomfort becomes marked and labor is well established, give three to six grains of pentobarbital by mouth. Thirty minutes later give 1/150-1/100 grains of scopolamine subcutaneously. Thereafter two or three grains of pentobarbital and 1/150 of scopolamine may be administered every three or four hours as needed. This treatment is equally effective in primiparae and multiparae but should be started at least two hours before delivery to give good amnesia. Full dosage to the extent of effecting the reflexes is contraindicated in upper respiratory infections. Hardwick and Randall conducted careful studies of the clinical behavior and blood of both the mothers and infants and found that pentobarbital exerted no deleterious effect. Complete or nearly complete amnesia is obtained in practically all properly managed cases.

AVERTIN

This form of basal analgesia has not been found very helpful because of its variable toxicity, intricate technique and ultimate lack of effectiveness. It is almost never used outside of hospitals and rarely there.

ETHYLENE

This gas combines certain features of nitrous oxide and ether. Its extreme explosiveness requires elaborate technical precautions which limit its usefulness. It is not used as commonly at nitrous oxide, though certain hospitals use it routinely combined with or fortified by ether, notably the Chicago Lying-In Hospital.

These sedatives maintain a limited patronage in obstetrics. Bromides and chloral hydrate are still fairly popular in England and

are occasionally used in this country to control restlessness and promote antepartum sedation. They are used in 20 grain doses orally or by rectum, usually combined with other medication. They are not especially effective. Rectal paraldehyde combined with pentobarbital has recently been used with success by Rosenfield and Davidoff, but their results have not been attained elsewhere. Kane and Rothe advocate paraldehyde with benzyl alcohol by rectum in repeated doses. Parenterally paraldehyde induces immediate but transient narcosis. Paraldehyde in any form is so unpleasant in general, however, that its use remains very largely restricted to hospitals for mental cases.

LOCAL ANESTHESIA

This form of obstetrical analgesia is championed by Greenhill and others. The technique involves injection of the lower half of the vulva and the perineum with 0.5 per cent novocaine, and the effect is that of local anesthesia in any operation. But several major objections limit its use. 1. It is helpful only in the second stage. 2. It has no effect on the backache associated with childbirth. 3. Considerable practice is required before one can hope to produce successful blocks. 4. The second stage of labor is prolonged because the neural reflex arc is broken and the origin of the perineal stimuli for bearing down is isolated. 5. It is contraindicated in infected cases.

In properly selected cases however, it is a wonderfully helpful and harmless form of local analgesia for the second stage.

In my own brief practice of home obstetrics I have been using, with caution, nembutal, scopolamine hydrobromide and subanesthetic inhalations of chloroform towards the end of the second stage. The nembutal is given in three grain doses, repeated as necessary to keep the patient drowsing between pains. A single hypodermic of 1/150 grains scopolamine is given late in the first stage. Patients so treated act as though hypnotized. They sleep between pains, begin to squirm or twist as a pain comes on and usually obey directions when ordered. Coöperation may be lost for brief periods apparently as a result of a slight overdose of the barbiturate, but this condition almost invariably corrects itself in less than one hour, by the rapid utilization and excretion of the drug. Subanesthetic inhalations of chloroform are used only when needed to relieve the severe bearing down and expulsive pains late in the second stage. In many cases it is not needed and is not used. The single hypodermic of scopolamine has so far been ample to efface any memory of the ordeal for the mother.

Labor has not been altered in time, character or duration by this routine. Restlessness has never been excessive. Operative procedures have not been required nor resorted to. There has been no infant mortality. Stimulation other than spanking has not been required by any of the infants, though an appreciable lag in respiration, crying, pink coloration and activity has been noted in a few of the newborn. So far, no contraindication for this sort of analgesia in the home, has been encountered.

NO DRUG IS IDEAL

Even with this brief summary of the current trends in obstetrical anodynes it should be evident that no one drug is ideal. The best results have followed combinations of two or more forms of medication. I have tried to point out as briefly and as accurately as possible, some of the outstanding characteristics of the available forms of analgesia. I have not attempted to formulate a guide to analgesia. However, I should like to say that from my admittedly incomplete survey of the recent literature and limited personal experiences I believe:

1. That the barbiturates, scopolamine, magnesium sulphate, rectal ether and nitrous oxide oxygen offer the greatest possibilities, by various combinations for analgesia, and with the exception of gas-oxygen are applicable alike to home and hospital deliveries.

2. That the field of obstetrical analgesia is still wide open and should be much more thoroughly studied.

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NEUROLOGICAL PROBLEMS AND THE GENERAL PRACTITIONER*

By JAMES L. WADE, M. D.
Parkersburg, West Virginia

It has been said that neurology is the stepchild of internal medicine. Many excellent physicians, well grounded in internal medicine, obstetrics, various branches of surgery, and other specialties, seem to be hopelessly in deep water when confronted by a neurological situation. To my mind, this state of affairs should be remedied, because it is the family doctor who sees many neurological problems in their incipiency, and if an early recognition is possible, in a fair percentage of cases something can be done. In the light of our advancing knowledge, the viewpoint of fifteen years ago, which was, "Well, it's a neurological case; once we make the diagnosis, our treatment will not be of much avail," is definitely erroneous.

It is with the idea that it is the problem of the general practitioner at least to recognize neurological conditions, that I have prepared this paper. Of necessity, I cannot hope to cover in detail this broad and ever changing field. However, if we, as practicing physicians, will not allow our enthusiasm to be cooled by the strong winds of routine practice, or by the intricacies of neuroanatomy and neuropathology, and attack the problem in a sensible manner, I feel that we can definitely advance our diagnostic ability. Of course, the general practitioner cannot be expected to be a finished neurologist, but he, at least, should be able to recognize the more common and typical neurological entities. He should not be expected to localize a brain tumor, but he should be chagrined not to suspect the presence of such a condition. Likewise, he should not be expected to delineate the differential diagnosis of tabes, but he should be able to prevent an utterly useless abdominal incision with the idea of curing the pain of a gastric crisis; he should be able to tell when an apparently simple case of so-called influenza is developing either an encephalitis or a meningitis; he should be able to tell whether or not a patient is suffering from the early results of a cord tumor instead of a so-called "neuritis"; and he should be on his diagnostic guard when he sees a child or a young adult with a mild fever, to suspect poliomyelitis.

It is unfortunate that we as medical students, were given such a sketchy and nebulous insight into neurological problems and diagnosis. When I was graduated from medical school a few short years ago, I will freely admit that my neurological diagnostic armamentarium was pitifully inadequate. All of us were in the same boat, so to speak, and as the years passed, and the exigencies of ordinary practice crowded our lives, we tended more and more to shoulder aside anything of a neurological nature. It is partly our fault that we have allowed the quacks and charlatans in the twilight zones of medicine to invade a field in which, while obviously their diagnoses are not and could not be correct, their treatment is criminally inept. These so-called treatments, which usually consist of the saying of some "abracadabra", the laying on of hands, the twisting of the body until it

*Read before the Monongalia County Medical Society, March 7, 1938.

resembles a pretzel, the use of fancy colored lights, or the invocation of special deities have allowed many sufferers from organic nerve lesions to be unpardonably mistreated, and in many instances permanently injured through a lack of adequate scientific diagnosis.

In approaching the problem, and attempting to present it, I have decided that perhaps we should begin by considering, not pathology primarily, but by viewing it from the standpoint of at what ages we may expect certain conditions to present themselves. As you know, often in the diagnosis of heart disease, merely the age, sex, and color of the individual will give a clue as to the existing etiology and pathology. The neurological age groups we can divide somewhat arbitrarily into five. These are from birth to ten years of age; from ten to twenty years of age; from twenty to forty years of age; from forty to sixty years of age; and above sixty years of age. You will see from Plate No. 1 that there

NEUROLOGICAL AGE GROUPING

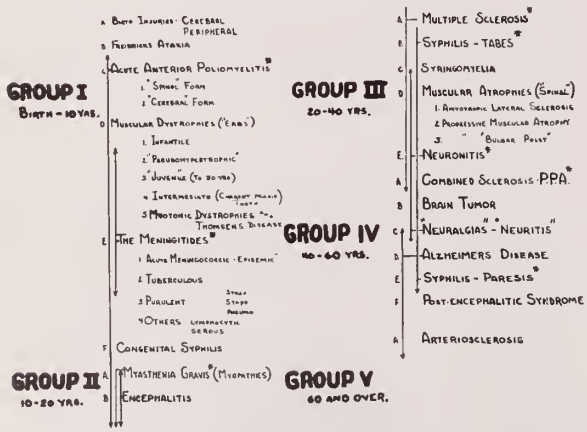

Plate 1. Author's grouping of more common neurological disorders according to age groups.

is a certain amount of overlapping, which is of course to be expected. But if in a given problem, we have in our minds a "diagnostic table" so to speak, we will be able to start off on the right foot. Given a neurological problem, it is perhaps superfluous to state that a careful history is important; yet, we must go into the family history, where we may get information of the so-called degenerative diseases of the nervous system, such as hypertrophic muscular dystrophy, Huntington's chorea, Freidrick's ataxia, and the like. The family history will give us certain pointers as to the course of the chronic infectious diseases: syphilis, tuberculosis, hypertensive or heart disease, the nervous mechanism in the family tree, and perhaps with tactful questioning, alcoholism or other usually concealed stigmata. The birth, development, and early life sometimes furnish invaluable clues. Details of the prenatal state, the presence of childhood infection, the onset of puberty, the menstrual cycle, child bearing, menopause—in short, a complete review of the patient's medical history is necessary. We must inquire into the habits, occupation, use of drugs, head or other injuries however trivial, etc. To a certain degree, we must accept the patient's statement as to the onset of his illness, keeping in mind that it is usually erroneous, or that especially in certain cases, a tendency to minimize or openly to deceive is present. We must know about the progression of the disease, whether it is rapid, whether it is insidious, whether it shows periods of remission, how much it has disabled, and where and when it is most severe. Are the symptoms generalized or localized; are the symptoms referable to the spinal cord or its components, or to the brain and its connections? What have been the previous medical diagnoses, laboratory examinations, and treatment? We must interrogate regarding function of the cranial nerves, sexual background, bladder, rectum, and motor and sensory components.

EXAMINATION

By now, we have at least begun our examination, because we have observed the patient's gait if he is ambulatory, and there are definite diagnostic attitudes if we will only recognize them. We have noted personality reactions, and have sized up to some extent the individual's attitude toward his disease. Is there anxiety, inordinate levity, passive acceptance, or deep introversion? We have scrutinized the facies, for abnormal movement or lack of it. We have watched the extremities for jerking, certain movements or

lack of them, muscular twitchings, and wasting.

THE EYE

It is well to have a standardized examination in mind, and I have found it best to begin with the cranial nerves. The pupils, easily accessible, should be checked for reaction to light, convergence, their size and shape, and the ocular muscles tested for ptosis, nystagmus, and the like. No eye examination is complete without an examination of the fundus with the opthalmoscope. Rough visual fields can easily be done without any instrument except the finger. Test the other cranial nerves. The fifth and seventh are easily accessible. The olfactory nerves can be tested with ordinary office equipment; hearing and vestibular function offer no difficulty, and merely listening to the speech will often reveal slurring or scanning, or other vocal abnormalities. The muscles of the tongue, throat, and palate can be examined with a minimum of trouble; and station, coördination, and muscular power are ascertained merely by having the patient stand, in the former, with the feet together, eyes open and closed; and in the latter by gripping the examiner's hand. Next we should test the movements of the trunk and limbs. Look for tremors, fibrillary twitchings, the tone of the muscles, and their position at rest. A sensory examination should offer no difficulties. All that is needed is a cotton applicator, a pin, a reflex hammer, two test tubes for hot and cold water, and a tuning fork. Testing of touch, pain, temperature, pressure, vibration, and joint sense will often help to localize in which area further study is necessary. The tendon reflexes should be gone over carefully, and the reflexes of either side compared. It is well never to say a reflex is absent unless it is reinforced. Skin reflexes are important, such as the abdominals, cremasterics, anal, and planter reflexes. Localizing signs of pyramidal disease are often found. Certain other signs, such as the conjunctival and corneal reflexes are of aid. Anal reflexes are of value in localizing low cord lesions. Of course, vasomotor disturbances, trophic changes, general bodily contour, presence or absence of hair, etc., are noted.

Now, if we have formed at least some opinion, it may be necessary to get some aid, especially from the opthalmologist, the laboratory, or the x-ray; by encephalograms, or spinal radiograms. We must never overlook internal medical problems, for to miss diabetes, tuberculosis, arteriosclerosis, or other disease is inexcusable, and may even defeat a neurological diagnosis.

As I said at the onset of this discussion, I will choose the more common conditions and attempt to give you their diagnostic criteria. In the first age group especially, acute poliomyelitis and meningitis are predominant.

ACUTE POLIOMYELITIS

The general practitioner usually sees poliomyelitis in its acute stages, and the neurologist in its sequelae. It is particularly common in the second and third years of life, and early childhood, although it is by no means rare in young adults. It is present at all times, although more common in epidemics during the hot months. The essential pathological process is an acute inflammation of the anterior horns of the cord, occasionally of the motor nuclei of the cranial nerves, with perhaps some involvement of the meninges. Thus we can see that the characteristic symptoms are an acute paralysis of the lower motor neurone type without sensory or other disturbance of the nervous system, unless the cerebrum is acutely involved with fever and convulsions predominating. Symptomatically, since it is an infectious disease, the prodromal period has been described, but is not characteristic. It is often mistaken for a mild acute infection, with a moderate fever, headache, anorexia, vomiting, and redness of the throat. The patient may be restless or drowsy, or complain or vague pains in the limbs or back of the neck. Following this so-called prodromal period, there may be a latent phase in which subjective improvement occurs. Then there is a phase which has been called a meningeal period, which we may call the

signal of the onset of the spinal disease. There may be some meningeal symptoms, but it is rare, except in fulminating cases, for the onset to be signalized by a stupor or a coma. Shortly thereafter, then, a most important sign, and it may be the first sign of the disease, is a flaccid paralysis. This paralysis may invade a small group of muscles, a unilateral group of muscles, single muscles, or many muscles and muscle groups. During this time, the fever gradually subsides, the deep reflexes gradually disappear, and the paralyzed muscles begin to atrophy. Pain on passive motion of the extremities may persist for some time. Depending upon what cranial nerve nuclei are involved, there are certain signs. Likewise, there have been various "types" described: the so-called abortive or nonparalytic cases; the severe meningitic syndromes, the bulbar syndromes with acute fulminating signs, including palatal and lingual disturbances, and difficulty in deglutition. The vast majority, however, fall into the spinal group.

DIAGNOSIS

The diagnosis during epidemics is quite simple; in many cases the diagnosis, especially in sporadic cases, is made only after the onset of paralysis. There may be marked meningeal signs, simulating epidemic or tuberculous meningitis. Certain cases begin with encephalitic signs, and may be confused with encephalitis, although the predominance of cerebral localizing signs, paresis of the bladder, and subsequent course should make the distinction. In adults, so-called "multiple neuritis" may offer some difficulty. Acute myelitis is very rare in children. In the later stages of anterior poliomyelitis, we may have to distinguish from some other chronic childhood nervous symptom complex. Cerebral palsies, often are characterized by spasticity; brachial plexus paralysis usually shows sensory disturbances. An indispensable aid in the diagnosis is spinal puncture. Meningococcic and tuberculous meningitis each give a different picture. The clinical signs of these two diseases differ primarily in that there are no flaccid paralyses, as a general rule.

Treatment: We do not as yet definitely know the etiological factor. I think it is pretty well accepted that it is due to a special ultramicroscopic filtrable virus with an affinitive reaction for the nervous system and the gray matter. Definitely contagious, usually by carriers, it is transmitted as a droplet infection, so that prophylactic measures seem to offer the best treatment. Recent publications from various investigators regarding the use of zinc high up in the cribiform plates of the ethmoids are doubtless familiar to you. The patient should be isoltaed and quarantined for about four weeks with absolute bed rest. Nose and throat secretions should be disinfected. Immediate lumbar puncture for diagnosis and repeated punctures to relieve pressure are necessary. Immune serum by all routes possibly has some value in preventing paralysis. Whole blood may be given as a transfusion. The question of dehydrating the central nervous system should always be considered. Certain cases require respiratory aid with the Drinker apparatus. Now, after paralysis has supervened, these points are strongly emphasized: no movements at all during the first six weeks. Discourage zealous parents from attempting to have the child regain use of himself during this period. Later, passive motion may be instituted, but never to the point of tiring. Exercise under water is extensively used. Strychnine and thyroid extract are theoretic adjuvants. It is important to avoid deformity by light supports and braces. Treatment should be continued for at least two years before any orthopedic manipulations are done. In summing up then, in treatment, do not start too soon; give rest and support to the parts; prevent deformities, as far as possible; continue treatment for two years.

MENINGITIS

Meningitis is the second main entity with which we are concerned in the first age group. In considering meningitis, I think it is well to remember that there are several types. It

is perhaps well to consider the symptomatology of a meningitis, and then to point out the differences between meningococcic meningitis, tuberculous meningitis, and various less common types of meningeal irritation. Perhaps the most common symptom, which is headache, is often the initiating signal. It is generally diffuse. It may be mild or severe. Frequently, it is increased on coughing or movement. Fever is generally present, but is of course much more common and higher in the acute meningitides than in tuberculous meningitis. Stiffness of the neck is the next important symptom and sign. Depending on the location of the meningeal irritation, especially if it is basal, there may be marked retraction of the head. As the disease progresses, the opisthotonos usually increases. The Kernig sign is usually present, although not altogether pathognomonic. The Brudzinski phenomenon is also very common, especially in meningococcic meningitis. Stupor, coma, and in children, vomiting and convulsions are to be expected. Chills, fluctuating temperature, and often a slow pulse, especially with tuberculous meningitis, or late in other meningitides, are found. Cranial nerve signs are often found, depending upon the location of the meningeal pathology. There is a definite rash, and herpes of the lips in epidemic meningitis. Certain motor irritating phenomena make their appearance. There may be various other general symptoms or localizing signs, but the early signs as enumerated justify a supposition, with an immediate lumbar puncture for diagnosis.

MENINGOCOCCIC MENINGITIS

This disease has been called by various names: epidemic cerebrospinal meningitis, cerebrospinal fever, "spotted fever." It is usually epidemic in winter and spring, but sporadic cases are not infrequent. Epidemics occur where there is crowding and poor hygiene. It is generally accepted that the disease is spread by healthy "carriers." The symptoms are usually acute, but there may be a day or two of mild prodromal manifestations. The general symptoms as delineated are present. Occasionally a convulsion ushers in the disease. Especially in younger children, along with the neck rigidity, there is rigidity of the muscles of the limbs and back. There is usually pain on handling the child, and sensitivity to light and sound. I wish to call special attention to the rash and the herpes. The deep reflexes are increased at first, and later disappear. Spinal puncture reveals a marked polymorphonuclear leucocytosis in the fluid which is usually cloudy, and occasionally blood-tinged. Sugar content is reduced, and in severe fulminating cases may be absent. The spinal fluid chlorides are moderately decreased. The meningococcus can usually be demonstrated in the smears. Blood cultures often are positive. As the disease progresses, coma deepens, the pupils become dilated or irregular; deafness is fairly common; there may be incontinence, and occasionally a monoplegia or hemiplegia. Later, incontinence becomes total, and death usually supervenes before the end of two weeks.

TUBERCULOUS MENINGITIS

Tuberculous meningitis is always secondary to an active or seemingly quiescent tuberculous infection somewhere in the body. Is is usually insidious in origin, and prodromes are common. However, it may occur acutely also. As long as the patient is conscious, the usual symptoms of meningitis may be complained of. Temperature as a rule is never very high; in fact, it may be subnormal. Pulse is generally slower, but respiration is usually rapid. Cranial nerve palsies are much more common than in meningococcic meningitis. If the patient is conscious, there may be a marked hyperesthesia over the body, although dermographia is less frequent than in epidemic meningitis. Again spinal puncture is of great aid. Fluid is usually under increased pressure, generally clear, and often shows a pellicle on standing. There is a lymphocytosis, almost total. Chlorides and sugar are decreased. Smears from the pellicle may show tuberculosis bacilli. Guinea pig inoculation will confirm, although it takes several weeks. Tuberculous meningitis is almost invariably fatal.

Purulent meningitis is caused by an invasion of the meninges with pyogenic organisms. It may occur as a complication of acute or chronic otitis media, mastoiditis, petrositis, and less commonly following purulent ethmoid, sphenoid, or frontal sinusitis. Postoperative meningeal irritation, sinus thrombosis, trouma, or intracranial pathology may be followed by acute purulent meningitis. There are many other rare forms following acute infections or pyogenic foci elsewhere in the body. Most common organisms are streptococcus hemolyticus, staphylococcus, pneumococcus, but other organisms may be implicated. The course of the disease strongly resembles severe meningococcic meningitis. Herpes is rather rare. At times, other clinical conditions will suggest the diagnosis. Spinal fluid again shows us the way. It varies from waterglass clearness to purulent thickness. The polynuclear count is very high. Organisms may be demonstrated; protein content is increased, sugar and chlorides decreased. Purulent meningitis is usually fatal, and the presence of pyogenic organisms in the spinal fluid of ominous significance.

Serous meningitis, lymphocytic meningitis, and aseptic meningitis should be kept in mind. We may likewise encounter meningismus occurring in the course of acute infections.

TREATMENT VARIES

Treatment of meningitis varies according to the type of the disease. Of course, serum treatment in epidemic meningitis is very important. It should be given intraspinally and intravenously. It can be given intramuscularly. It should be given until the spinal fluid begins to clear. Supportive treatment of course is necessary, with isolation, dehydration, frequent spinal puncture, etc. Recent reports on the use of sulphanilamide have been encouraging. Tuberculous meningitis calls for, unfortunately, only symptomatic treatment. Purulent meningitides are likewise very difficult to treat. Operative interference, even in competent hands, is unsatisfactory. Other procedures have been recommended, such as through and through drainage, intraspinal bacteriophage, laminectomy, etc.

MULTIPLE SCLEROSIS

In the second and third age groups, let us consider multiple sclerosis, which generally occurs between the ages of twenty and forty years. To my mind, this disease is much more common than is generally thought, and an extremely interesting condition. I must confess that I am "multiple sclerosis conscious", since I have found in my practice within the past year and a half, five definitely proven cases, and several more which I strongly suspect. Many sufferers from multiple sclerosis are treated for hysteria, psychoneurosis, or malingering. As its name indicates, it represents a diffuse involvement of the nervous system. If this is kept in mind, the kaleidoscopic symptoms are often explainable. Let me emphasize that every portion of the nervous system may be affected. The onset may be insidious; in fact usually is, and transient symptoms, such as temporary strabismus, diplopia, some slight visual disturbances, or mild weakness of an extremity, may occur. These symptoms are frequently regarded as of no significance, and are only brought to light by painstaking interrogation. Certain cases may show mental upsets or emotional imbalance. Pain is a rare symptom. I said the disease is usually insidious. There are occasional acute forms of an apoplectic type. Convulsions or epileptic seizures may be the first sign. However, as the clinical picture develops, we get the impression of scattered, unrelated, remitting episodes, gradually progressing into the more or less complete symptomatology as described by Charcot. The earlier and the less complete the signs, the more difficult the diagnosis. The more prominent symptoms and signs may be somewhat arbitrarily listed as visual, motile, and sensory. Visual symptoms may consist of diplopia, nystagmus, or strabismus. There may be pallor of the temporal side of the optic disc on opthalmoscopic examination. The motor symptoms, since the pyramidal tract is involved, consist of some

disturbance in ability to walk; there may be a spastic gait with rigidity of the lower legs, and often, particularly if the posterior columns or cerebellar pathways are implicated, there may be stumbling and ataxia. Incoördination appears most often in the upper extremities. Tremor is a characteristic sign, the so-called "intention tremor." It may become so bad as to interfere with writing, dressing, etc. Head tremor, when present, is characteristic of the disease, and is definitely different from the tremor of Parkinsonism. Occasionally, speech disturbance which usually begin with a slowness, later going into scanning or slurring, is observed. The explosive type of speech, once heard, is not often forgotten. Examination of the reflexes will reveal hyperactivity. There may even be clonus. There is usually a Babinski sign or its confirmatory, and in the upper extremity the Hoffman sign is occasionally present. There is loss of abdominal reflexes. The sensory symptoms may be overlooked by the patient, but the signs or examination may reveal disturbances of pain and touch; temperature, less frequently. The distribution of the disturbance is patchy. Position and vibration sense may be markedly involved, particularly in posterior column disease.

OTHER SYMPTOMS

There are many other symptoms or signs which we may find, but which we cannot completely delineate in this discussion. If we keep in mind then the following points: eye symptoms and signs, and I would like to point out that an Argyll Robertson pupil is practically never found in multiple sclerosis. (The importance of this statement will be observed when we consider nervous system syphilis.) Nystagmus and bitemporal pallor may be found. Ataxia, spasticity, intention tremor, hyperactive reflexes, absent abdominal reflexes, and perhaps some speech disturbance are important land marks. If the differential diagnosis, if we keep in mind the underlying pathology, there are in reality only three conditions which we must bear in mind. (1) Disseminated meningovascular syphilis, which is usually more acute, shows few remissions, presents pupillary disturbances, and a definite blood serology. General paresis may be mistaken for multiple sclerosis, especially in the light of mental changes. But general paresis presents a rapid deterioration, more of a lip and tongue tremor, pupillary signs, and positive serology. Encephalitis may be confused, but it is an acute inflammatory disease; meningeal symptoms are common; there are often fever, pupillary changes, radicular pains, and a short course. Spinal fluid examination again may help. Cord tumor and brain tumor may offer some difficulty, but neurological examination, x-ray study, with lipiodol or encephalography will be of aid. It is well to remember that absent abdominal reflexes, nystagmus, intention tremor, and Babinski sign, cannot be simulated by an hysteric. Another interesting point which impresses me, is that in an acute apoplectiform seizure in a young individual, we must always consider multiple sclerosis in the absence of syphilis, cardiovascular disease, or preceding acute infection. There is another clinical entity, which may be ushered in by a convulsion or palsy, and which enters into the differential diagnosis, aneurysm of the Circle of Willis. In this condition, a bloody spinal fluid will make the diagnosis. The spinal fluid findings in multiple sclerosis, while not definite, will show a normal pressure, a clear colorless fluid, usually no increase in cells, but occasionally there may be a slight increase in the lymphocytes up to 100 per cu. mm. The protein is increased in about 50 per cent of cases, varying from 45 to 150 mgms. The gold curve is of the zone No. 1 type, and this curve is more marked when there is an increase in cell count. Sugar, chlorides, and serology are negative.

TREATMENT

As regards treatment, since we do not know the exact cause, we cannot definitely state. Silver salvarsan in 1/10 gm. doses has been recommended, and results said to be good. Quinine is given empirically, and occasionally seems of value. Intravenous sodium cacodylate has been used rather extensively. Fever

therapy may be tried. Hydrotherapy and electricity are of no avail. Since many cases remit spontaneously, any type of treatment may seem to its proponent to have been of value.

TABES

Syphilis of the nervous system obviously cannot be completely covered in this discussion, but I do want to consider tabes dorsalis and paresis. Tabes dorsalis is essentially a degeneration of the nerve fibers and the posterior columns of the cord, the posterior ganglia and the roots between the ganglia and the spinal cord. The cranial nerves are likewise predominantly affected. Pain is almost always an accompaniment of tabes. It is a radicular pain, and the site of pain depends upon the roots involved. These pains are described as lightening, shooting, sharp; they may mask under the name of a "rheumatism" or "neuritis." They may affect the chest or the abdomen, with so-called girdle pains. You are all familiar with the so-called crises, the location of which depends upon the segment and roots involved. Along with these radicular pains, we may find sensory disturbances corresponding to the sensory roots, with hypalgesia, and hypasthesia. More characteristic is the disturbance of deep sensibility, manifested in the ataxia, Romberg sign, or impairment of position and vibration sense. There is difficulty in walking in the dark, and the patient watches his feet. Loss of knee and ankle jerks occur in almost every case. The Argyll Robertson pupil occurs more frequently in tabes than in paresis, and a fixed pupil is more significant of a meningovascular syphilis. There is still some discussion as to the exact mechanism in producing the Argyll Robertson pupil, but suffice to say that while the pupil may be contracted, and does not react to light, it does react to accommodation. Tabes seems to affect the optic nerve in the majority of instances. Optic atrophy may occur very early. The nerves of the extraocular muscles, particularly the third nerve, are affected early. Their symptoms may be fleeting, recurring, or incomplete, and ptosis or strabismus are more common. Later symptoms may be mild, or severe, and there may be complete incontinence or retention. Certain other signs and symptoms may occur: namely the Charcot joints, trophic disturbances, spontaneous fractures. I have recently seen a case of tabes in which there was a bilateral Charcot joint of both hips. In making the diagnosis of tabes, if we consider the so-called classical signs: namely, the Argyll Robertson pupil, the history of radicular pain, diminished or absent knee jerk, ataxia, disturbed position and vibration sense, impotence and bladder incontinence, hypalgesia and absence of deep pain sensation, plus the positive blood and spinal fluid serology, we should not often be led astray. The spinal fluid shows a normal pressure; cell count between normal and 80, with an average of about 40 cells; total protein is seldom over 100, and may be normal; sugar and chlorides normal; gold curve is first or midzone type. The Wassermann is strongly positive except in treated or late "burned out" cases.

I wish to point out likewise that a negative blood Wassermann does not exclude syphilis of the central nervous system, and that a spinal puncture should be insisted upon in any case where the diagnosis is obscure. There are several conditions which may be confused, but which should offer little difficulty in the face of a careful appraisal of the spinal fluid findings. These are namely, the other forms of cerebrospinal syphilis, such as paresis or meningovascular syphilis; occasional cases of postencephalitic Parkinsonism, multiple neuritis, of which I shall have something to say later, and the combined sclerosis of a primary pernicious anemia.

PARESIS

Paresis may be said to be a syphilitic mental disease with physical signs occurring comparatively late after syphilitic infection. The cerebrum, to a lesser extent the meninges, and to some extent other focal lesions produce the clinical signs. It is a chronic, gradually progressive, degenerative disease, with psychosis, and consequently has a varied symp-

tomatology. The ultimate picture represents an organic dementia, a progressive degeneration with physical features of either fleeting or permanent paralysis, convulsive seizures, pupillary signs, tremors, and speech disturbances.

MENTAL SYMPTOMS

Mental symptoms may come on insidiously, preceded by irritability, lack of concentration, insomnia, hypochrondriacal depression, or temper. Not marked in the insidious type, they may be classed as neurasthenic or neurotic. But the appearance of such symptoms in a young adult or middle-aged person who has not previously been of a neurotic type and who does not have evidences of cerebral arteriosclerosis, should suggest paresis. More pronounced symptoms may be a reversion of an otherwise impeccable moral outlook. Memory is impaired; judgment in business begins to be faulty; delusions or hallucinations develop. An almost typical picture is that of the delusions, so that sometimes there is a feeling of extreme euphoria, statements of prodigious ability, expansiveness, volubility, and incoherence of association. Not every case will exhibit these of course. There may be the exact opposite, in which depression is predominant. Very sudden onset may appear, with acute mania, howling delirium, or constant activity. Somatically, the signs will substantiate the psychiatric impression. The eye signs to be especially looked for are rigidity of the pupil, irregularity in the size, and in some cases optic atrophy, which however is not as common as in tabes. Marked optic atrophy should make us suspicious of taboparesis. Tremors of the lips and tongue of a fine type are usually present. The writing is often tremulous. The paretic speech is probably well known to most of you. It can usually be ascertained by test phrases if it is not apparent as a tremulous, stammering, slobbery, slurring type. In true paresis, the deep reflexes are generally increased. The Babinski is seldom positive. Other neurological localizing signs are dependent, of course, upon involvement of the cord. Epileptic or apoplectiform attacks are very commonly the complaints which bring these patients to the physician. I have already mentioned the fact that such syndromes should always be suspected in this type of individual and age group. Here the blood and spinal fluid Wassermann is almost 100 per cent positive. There is an increase in the number of lymphocytes in the spinal fluid, ranging from 10 to 100. Globulin is increased; the colloidal gold, or the mastic test will show the zone No. 1 curve which used to be called the "paretic" curve. This zone No. 1 curve is also found in multiple sclerosis, but the discoloration of the tubes is generally not as marked. In the diagnosis of paresis, we must remember that syphilis of the nervous system may take the form of a diffuse meningovascular syphilis, a taboparetic form, or a meningeal form. However, if we remember the various diagnostic criteria and correlate the existing physical findings with the psychotic manifestations, we should not go unrewarded.

EPIDEMIC ENCEPHALITIS

Epidemic encephalitis, with its sequelae, may be confusing, but the absence of the psychosis, the preceding history of an encephalitis or perhaps an illness diagnosed as "influenza", and the negative serology, will give us the clue. Frontal lobe tumor will occasionally simulate, in its psychotic manifestations, paresis; but tumor is usually accompanied by choked disc, progresses more rapidly, and has a negative serology. Multiple sclerosis is a diagnostic stumbling block at times, but the absence of pupillary signs, the diffuse character of the disease, and a negative Wassermann will usually establish the diagnosis. Arteriosclerotic cerebromalacia may present some psychotic features, but the greater age of the patient, perhaps evidence of hypertension or other cardiovascular or renal disease, and the negative serology, argue against paresis.

Alzheimer's disease generally appears in the early second half of adult life, usually in younger individuals than cerebral degeneration of the aged. Chronic lead poisoning,

and chronic alcoholism must be considered. In speaking of the treatment, first of all we must state that in the advanced stages, it is unsatisfactory. Marked phychoses must be institutionalized. Malarial therapy offers some hope of arresting the progress of the disease. It should be done in expert hands, and in an institution. It is best to give a course of malarial therapy followed by anti-syphilitic treatment, and in my experience, tryparsamide is the best aid. Care must be exercised in order to anticipate an optic neuritis and atrophy during tryparsamide treatment. Careful perimetric examination before starting therapy and at frequent intervals is necessary, and at the earliest sign of any contraction of the fields, tryparsamide must be stopped. I have, however, seen two cases of optic neuritis existing before tryparsamide therapy, clear remarkably with the drug. I mention intraspinous treatment only to point out that generally it has fallen into disrepute. Recent attempts at treatment with diathermy or Kettering hypertherm, or other methods of artificial fever are still to be evaluated. Other foreign proteins have also been used to produce fever such as the typhoid vaccine. The rest of the treatment is essentially symptomatic, and need not be discussed here. In closing the discussion of paresis, I should like for you to remember that juvenile paresis does occur, although it is rare. Its most important feature is progressive mental deterioration and epileptiform seizures. Clinical and spinal findings are the same as in the adult.

NEURONITIS

If you will notice from the chart, I have listed between the third and fourth groups, a term "neuronitis." This term "neuronitis" was first used by Foster Kennedy in 1919 to describe a condition which had previously been given various names such as "polyneuritis," "radiculoneuritis", "acute febrile polyneuritis", and "multiple neuritis." Osler, in 1898, described the disease, calling it "acute febrile polyneuritis with facial diplegia." The term "neuronitis" is perhaps most satisfactory, because the ganglia as well as the nerve fibril is involved. The most recnt group of cases was reported by Gilpin, Moersch, and Kernohan of the Mayo Clinic in 1937. This disease, which as its name indicates, is a diffuse neuritic syndrome, involves both the motor and sensory components, and is generally in the lower motor neurone and primary sensory neurone. The etiology is not definitely established, but the disease in the majority of cases is preceded by mild transitory infection, often of the "cold" or "flu" type. After a variable period of time, there is rather an acute onset of weakness, and parasthesias of the extremities, the lower extremities being involved more frequently than the upper. The facial muscles through the seventh nerve are frequently involved also, but other cranial nerves are usually spared. Pain is frequently absent, but in some instances may be severe. In speaking of a "neuritis", we usually consider pain as a predominant symptom, but in this interesting condition it does not predominate. The sensory symptoms usually are rather marked. The disease seems to affect either sex with perhaps a slight predominance in females. The majority of patients are in the third decade of life. Complaints, as listed in the order of their frequency are: (1) parathesias; (2) moderate pain and discomfort; (3) weakness of the legs; (4) weakness of the arms; (5) facial palsy. Distal portions of the limbs are the most severely affected. There is a tendency for a steady progression, for a time, but most cases recover. The course of the disease may, from the time of onset until recovery, vary from ten weeks to two and a half years. The acute stage of the illness usually lasts two to three months; convalescence is prolonged. The mortality rate is about 20 per cent. In most instances, the examination will reveal marked motor involvement with complete helplessness. There is no muscle atrophy except that of disuse, and fibrillary twitchings are not observed. Deep reflexes are diminished or absent, and there is often marked tenderness over the nerve trunks. Sensory findings are never as pro-

found as the motor changes, and vibration and joint sense are usually more obviously disturbed than pain, touch or temperature. Not all cases show the facial paralysis. There is a choked disc in certain instances. Characteristic spinal fluid findings are, in many cases, dissociation between the total protein and the cell count. The total protein is usually over 100 mgms. for each 100 c.c. of spinal fluid, and may be as high as 1000 mgms. Cell count is usually normal, or slightly increased, mainly in the lymphocytes. Colloidal gold curve is of the midzone character in 50 per cent, and of a first zone character in 25 per cent. The fluid with high protein content often is a yellowish color and may clot spontaneously. Flocculation test for syphilis is negative.

Since the etiology is not definitely determined, there is no specific therapy. High vitamin intake, forced feeding, foreign protein shock treatment, intravenous acriflavine and other dyes have all been tried. Symptomatic and supportive measures are obviously indicated since the disease has a fairly good prognosis. Df course, in the differential diagnosis, it is important to exclude the chronic intoxications with alcohol, lead, arsenic, and other less common agents. Infectious diseases are sometimes accompanied by neuritic symptoms. Of late, the avitaminoses have received much attention, and it is thought by many authorities that faulty metabolism has a great deal to do with the development of neuritic syndromes. The neuritis of diabetes and vascular insufficiency must always be considered.

MYASTHENIA GRAVIS

The condition designated as myasthenia gravis is primarily a form of myopathy. The tendency in recent years has been to consider a disturbance of muscle metabolism as a part of the picture also. The various forms of myopathy as seen on the chart differ from the true case of myasthenia gravis in several ways. The cause of myasthenia gravis is not definitely established. It is a disease which is most common in early adult or middle age, and affects the sexes about equally. The most characteristic feature of the disease is muscular fatigue and muscular weakness. The disease may show marked remissions from time to time. In approximately 50 per cent of cases there will be elicited a history of antecedent infection. The patient complains of fatigability or undue tiredness in carrying out his daily routine. Perhaps the most common symptom is a transient diplopia with blurring of vision, or a fleeting ptosis or facial weakness. Secondly, the muscles of the tongue and pharynx become weaker, so that there may be a fatigue after prolonged talking, or a weakness and slurring in pronunciation. Undue tiredness is noticed on chewing or swallowing. Deglutition becomes impaired and often fluid is regurgitated through the nose.

MUSCLE FATIGUE

Next in sequence comes fatigability of the muscles of the extremities, so that the patient can walk only a short distance without falling or must stop and rest before he is able to continue. Muscles of the neck may become markedly fatigued. Many of these patients state that they are hardly able to comb their hair, brush their teeth, write, or turn in bed. There is often marked dyspnea without other cardiac symptoms. In this regard, it is highly probable that the heart muscle is involved in the same process that is interfering with the striated musculature. Clinically, on neurological examination, the reflexes remain unaffected, and there is no demonstrable disturbance in sensation, bowel or bladder function, atrophy other than disue, or hypertrophy.

There have been numerous reports as to the existing pathology, and while no theories have been definitely proven, a rather large percentage of cases will show lymphocytic infiltration of the muscle as demonstrated by H. R. Butt of the Mayo Clinic. Certain forms of muscle degeneration are noted. In all cases studied, Gram-positive diplococci or ovoidcocci were found intramuscularly or intermuscularly. In certain instances, cultures from infected teeth, when injected into rab-

bits, produced weakness of the muscles of the neck and forelegs. This work was done by Rosenow of the Mayo Clinic and the experiment repeated in monkeys with the simulation of the myasthenic syndrome.

The diagnosis is not difficult in far advanced cases, but the difficulty lies in those cases in which many of the symptoms are interpreted as neurasthenic, neurotic, or hysteric. Differentiation from the muscular distrophies or atrophies can be made by careful neurologic examination. From the laboratory standpoint, there are no characteristic blood chemistry changes. The urine occasionally shows an increased output of creatine, but this is not consistent. Occasionally diagnostic difficulty will arise in cases of multiple sclerosis, encephalitis, or chronic bulbar palsy of polioencephalitis.

GLYCINE BENEFICIAL

As regards treatment, it is pretty well accepted that the second aminoacid, glycine, is of definite benefit. The optimum dose of this muscle food, and it is a muscle food rather than a drug, seems to be between 20 and 30 grams daily, according to the work of Dr. Harriet Edgeworth, herself a sufferer from the disease; ephedrine sulphate seems to have a definite synergistic action. The dosage varies from three-eights to two gr. a day. In the last year, certain investigators have likewise reported benefit by the use of prostigmin by mouth and parenterally. Irradiation over the thymus has been tried. In regard to the general treatment, often with bulbar symptoms, tube feeding is necessary, plus hygienic and symptomatic care.

It seems that here we have a fairly common disease, which by correct diagnosis and proper therapy, we can expect if not a cure, at least a subjection of the disease to treatment.

In conclusion, I realize this has been of necessity an incomplete discussion. I have said nothing about the neuroses, psychasthenias, or hysterias. It is obviously impractical to attempt to cover the endocrine or neurovegetative syndromes. I have likewise attempted to steer clear of such subjects as epilepsy, migraine, and other controversial syndromes. In an attempt to approach the problem of diagnosis from an organic rather than a functional side, my purpose was to eliminate cases of a functional type by exclusion as far as possible. I appreciate your attention to what may have been at times a rather involved, and I fear, too lengthy discussion. I apologize for the imperfections, and hope that I have at least stimulated more interest in what, to me, is the most fascinating branch of medical practice.

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There can be but one master in the house of medicine, and that is the physician.—*Hygeia.*

THE NOSE AND ITS OWNER*

By A. A. SELETZ, M. D.
Charleston, West Virginia

RHINOLOGY as a specialty is only three generations old. A few pioneers in the first generation, led by Zuckerkandel of Danzig, made a serious attempt to learn something about the mysterious nose and its still more obscure adjacent sinuses. Some phases of physiology, as well as anatomy and pathology, which they have originally observed in their tireless investigation, still hold good in truism; others have recently been shown to be either partially or altogether incorrect. The second generation, with a few exceptions, did mostly plumbing and mechanical surgery within the nose and paranasal sinuses with both the best of intentions on the part of the surgeon and permanent mutilating results, now and then, on the part of the recipient.

The study of physiology, so important, so vital, when dealing with the nose and its adjacent parts, during this second generation of rhinology seems to have sunken into oblivion.

With the third generation, especially in the past few years, the nose, figuratively speaking, has come up for a breath of air in the field of research. With the additional knowledge gathered and some of the older concepts reshaped to conform with physiology, indeed, new avenues have opened up, which are not only of academic interest, but are of immeasurable clinical value.

It should not then be surprising that the relatively small protuberance projecting from the middle of the face, of firm consistency and covered with skin, should only be of cosmetic interest to the average lay person and not much more to the average physician of certain localities. It is safe to say that to the general practitioner of such localities, the nose with its adjacent cavities is as much of an obscure quantity as an X is in an unsolved algebraic problem to the high school pupil.

Generally speaking, the treatment of the nose and its adjacent sinuses has met with a good deal of disappointment. Any approach which would lead to its betterment should be more than welcome.

The contention of this paper is that a better understanding of physiology of the nose is indispensible to such an approach. Also, that with proper care, sinusitis becomes less of a problem.

Surgery today discards indiscriminate amputation for more conservative measures. It restores the function of a part whenever possible, instead of throwing that part away and leaving the patient a cripple. Especially is this doctrine applicable to the nose and paranasal sinuses.

The nose for its relatively small size has so much to perform for the welfare of the rest of the body that it must be in perfect order to accomplish it all! Half a nose is unable to cope with such a task. It may be different with other organs. For example, while both kidneys are preferred, nevertheless, one kidney in case of necessity learns to do the additional work of both. With the nose it is different. There are no such compromises in its domain.

THE NOSE IN EVOLUTION

With this introduction I now wish to discuss, rather briefly, a number of phases pertaining to the nose and its owner. If at the end of this discussion, the nose will still be as obscure as before the discussion, the fault will not be with the subject proper, but with its presentation.

Thus far the hypothesis that life began in water, gradually crawled out onto land, into the jungle, into temperate zones with cities

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studded with skyscrapers, and aeroplanes defying the law of gravitation, is still in the foreground in the study of evolution.

In the fish we find the nose to be most primitive in both its structure and function. A simple chamber with a few olfactory cells on a mucous membrane is practically all we see there. And no wonder. The fish is always submerged in water. Practically everything that is of vital interest to the animal is either in solution or suspended in minute particles within the water. The fish is constantly in motion and the current created by such motion brings these various substances in contact with the olfactory cells. The animal thus both finds its food and is able to orient itself.

In man olfaction is of relative little importance, and the nose is primarily an air conditioner to the underlying lungs. The interior of the nose secretes an average of one quart of fluid each twenty-four hours, thus properly humidifying the inspired air prior to reaching its destination, namely the lungs, and the paranasal sinuses.

FUNCTIONS OF THE NOSE

The nose also acts as a filter for bacteria and various impurities, thus efficiently protecting the underlying tracheobronchial tree. It also has other functions, such as warming the inspired air, and ventilating both the middle ears and paranasal sinuses, as well as olfaction, but these latter functions are of secondary importance.

While we are still on the subject of comparative study, it may be of interest to mention the fact that in the new born the nose in its inherited attributes is closer to the lower animal than it is later in life, when it is more civilized. In the new born, too, all the air filters through the nose. Recently it has been observed in a lying-in hospital, in London, that in some of the new born that perished because of respiratory difficulty, the air tract via the mouth in the postmortem examination was found to be clear, and it was the nasal route that was obstructed with meconium. In other words, the new born prefers to die rather than take a breath through its mouth. It is later in life that we cultivate the art of mouth breathing. Obstetricians should pay attention to this observation. When necessary they should aspirate the nose before they do the oral cavity.

THE EPIGLOTTIS

Here is another both interesting and valuable inference from comparative study: The lower animal must not lose contact with olfaction even during the act of devouring food. To accomplish this it has a cartilagenous mechanical adjustment in the form of a well developed epiglottis, which, during deglutition, hooks itself on to the palate, forming a continuous air route. The larynx in the animal being on a much higher level, such a device is ideal. Now that we know that the epiglottis in man is a rudimentary piece of anatomy, a former part of the olfactory mechanism, we safely amputate it when diseased, say, with tuberculosis or a neoplasm, without any ill effects to its owner.

Before leaving the subject of evolution I wish to call your attention to another phase which is of clinical value. Biologically speaking, when we were still submerged in water, our mucous membranes were constantly bathed in salt water, in electrically charged ions. In the course of evolution we hornified ourselves with an envelope and took the sea into us, circulating in a system of a tubular arrangement as well as a lake of a capillary network, the fluid propelled by a pump.

Is there any wonder then that the nasal mucosa as well as that of the accessory sinuses likes normal saline so well, that it responds to this solution when infected. When a section of such mucous membrane is removed from a fresh cadaver and placed under the microscope the cilia are as dormant as the cadaver itself. However, when the same section is placed in a saline solution, it does not take very long before the cilia are seen actively engaged in their important function of both powerful and rapid movements. Is there any wonder then that the infected mucosa of a given paranasal sinus (unless chronically diseased and beyond repair) responds so readily

to the repeated irrigation with a normal saline solution? Ciliary activity is paralyzed in the presence of infection. When the cilia are reactivated the infection is dealt with more efficiently.

VASOMOTOR DISTURBANCES

The subject under discussion would be incomplete without saying something about vasomotor disturbances.

Again, comparing the lower animal with the human we wonder why we do not have even more such disturbances. To begin with, in the lower animal, when in physical combat, the head is the most important weapon. It is always alert in a reflex sense, always ready in line of defense. No wonder then that the trigeminal nerve, supplying the facial area with both sensory and motor filaments has become the most voluminous and most widely developed of all the cranial nerves. It is both sensory and motor, falling in line with the demands of various parts it is distributed to. Indeed, the vasomotor supply of the interior of the animal nose is both abundant and intricate.

In the lower animal we also have a strong relationship between the interior of the nose and sex life. It is via the nose that the animal seeks its mate and it is through the sense of smell that the same animal excites its sexual organs.

In man, of course, it is different. We have imagination and visual memory. In our case the spoken word, the written word, a mere suggestion, a mere symbol are evolutionary substitutes for olfaction, and often much more effective. Nevertheless, we cannot divorce ourselves from the lower animal and thereby remove the relationship between the nasal mucosa and the sexual organs. Women in particular have to pay the price for such inheritance. The woman who does not have a swollen nasal mucosa during menstruation, indeed, is fortunate. When some of the nasal passages are abnormally narrow or partially obstructed through a spurred, ridged or deflected septum and the swollen mucosa completely shuts off such a passage leading to a paranasal sinus, the physiologic air conditioning of the sinus is interfered with, and pressure headaches, more or less periodic or migraine in character, are disturbances only too well known to most of us. During adolescence when the endocrine system is suddenly called upon to perform the work of the adult, the nose "knows" it. The physiologic hypertrophic changes in the nasal mucosa and its turbinates not infrequently are misinterpreted as pathologic changes. In menopause we encounter even more intense disturbances, frequently of the vasomotor type, mimicking allergy. Nasal vasomotor disturbance in hypothyroidism is now and then a disturbing element.

RECENT EXPERIMENTS

Before leaving the subject of the relationship between the nose and sex organs it may be in place to describe briefly some of the more recent experimentation in that field conducted on lower animals.

Extirpation of the inferior turbinates in young rabbits, guinea pigs and dogs has caused deficient development of the genital tract of these animals.

In weak concentrations an aqueous extract of the inferior or middle turbinates of a guinea pig stimulates contraction and causes an increase in muscle tonus in the isolated uterus of the same animal. A more concentrated solution induces tetanic contraction of this organ. The action of the extract is intensified in the uterus of pregnant animals or those which already have been pregnant. An extract of mucosa, bone or muscle tissue from any other part of the body does not have any effect on the isolated uterus.

When one speaks of the architecture of a nose in a medical sense, he does not necessarily mean its exterior, how beautiful it may or may not be. As a matter of fact, the so-called "infantile" nose, wide, almost bridgeless, the type which is characteristic of the pigmented races, is by far more ideal in a physiologic sense than is the beautiful, more or less narrow, high bridged Caucasian nose.

One must not forget that a nose, above all, must be well balanced. When one nostril is too wide, permitting too great a blast of air, such air may do more damage to the sensitive cilia of the nasal mucosa than the other nostril which may be too narrow. When cilia have too much or too prolonged air exposure they become either highly inactive or paralyzed in direct ratio to such exposure. When one realizes that properly active cilia make the most effective instrument in preventing infection, only then can one appreciate a properly constructed nose which dose not offend these highly sensitive cilia. The currents of air within the nose must be well balanced, not too much of it at one given point, but equally distributed. Properly constructed turbinates give rise to eddies and these in turn give the air a chance to be well distributed to all parts of the nasal mucosa in such a manner that by the time the current of air is deflected to the natural openings of the adjacent sinuses, it is both well moistened and properly warmed. A badly deflected septum, ridges, or spurs all interfere with proper air circulation as well as drainage of accumulated stagnant secretions. Such secretions make a good culture medium for bacteria. Bacteria and their toxins inhibit ciliary activity. The vicious circle of sinus infection may thus have its inception.

ETIOLOGY

The etiology of both nasal disturbances and sinus infection is composite. I shall enumerate and discuss briefly some of the more important components as they come to mind in attempting to give a paper within alloted time limits.

The knowledge of the histology of both the nasal and sinus mucosae is both interesting and important and one should be thoroughly familiar with it. The understanding of the physiology of the uppermost layer of this type of mucosa, is the keynote to some of our upper respiratory problems, and I shall discuss briefly the cilia and its normal blanket of mucus. These hair-like projections are probably the most effective factor in the prevention of nasal and hense general infection. The cilia under normal conditions are hardy, tireless workers. They probably beat constantly, although there is some evidence that in the absence of any surface irritation, small areas may rest. Their direction of streaming is always out of the sinus to the nose and backward to the pharynx. The ciliated layer of both the sinus and nasal mucosa is covered with a carpet of mucus, which in turn is made up of two layers. The lower one, in contact with the cilia, is more fluid and is for the purpose of keeping the cilia alive. The upper mucus layer is less fluid and is for the purpose of catching bacteria as well as other foreign particles as a fly sticker catches flies.

Now, if one can visualize myriads of vertically stretched out arms covered over with a carpet and these arms waving in the manner outstretched arms do in the act of swimming, it is not difficult to visualize such a carpet moving in waves from one point to another. Thus normally it takes about thirty minutes for a given area of the carpet of mucus to travel from the anterior part of the nostrils to the pharynx, where both constant and involuntary swallowing movements dispose of the bacteria into the stomach with its free hydrochloric acid in a similar fashion as an incinerator in a modern home disposes of garbage. Since the entire journey for a bacterium from the anterior nostril to the pharynx takes only thirty minutes—and since no culture can be grown in that length of time, such a time schedule seems entirely satisfactory from the point of view of health.

Certain facts (some of these only recently determined) are extremely important in the proper management of sinus disease.

While cilia are extremely hardy structures under normal conditions, they are very sensitive when such conditions change. For example: Drying paralyzes them at once, often permanently. Heating above 43.5 degrees C does likewise. Extreme cold stops their action but does not injure them. As the temperature is slowly elevated they resume their beat with renewed vigor.

After complete removal of a diseased sinus mucosa, the membrane is commonly regenerated from the nasal mucosa completely with cilia. The cilia are affected by very few of the drugs in common use in the nose. Cocaine and adrenalin hydrochloride are the exceptions. These two drugs are decidedly injurious to the hair-like projections, except when used in extremely weak dilutions. Oily solutions seem to hamper the streaming and their use should be discouraged. In either very young or very old patients inorganic oils within the nose are absolutely contraindicated. Such patients have great difficulty in disposing of the oil globules which may find their way into the lung tissue and act as foreign bodies. Recent autopsies on patients of the two extreme ages, who had used oil sprays for some time and later died from a lung involvement have convincingly proven that point.

INFLUENCE OF CLIMATE

An important factor in the etiology of sinusitis is the dry indoor air in the winter. Especially does it apply to this valley of ours, where the heating facilities from that point of view are not ideal. The vast majority of homes in our midst have open gas fires. I do not know of a more efficient way of causing misery to a nasal mucosa than by burning an open gas furnace.

It so happens that the surface of the body, including that of the mouth and pharynx, carry positive electrical charges. The electrical charges of the surface of bacteria, on the other hand, are negative. Such charges under ideal conditions are extremely minute, but under certain conditions of the atmosphere, especially in the winter when the air indoors is dry, they become sufficient enough to cause absorption of dust particles and bacteria floating in the air and to attract them from a distance of several centimeters. The static charge is generated by the friction of shoes against carpets and clothes against clothes. Such phenomena are easily recorded by means of a string galvanometer.

The lack of atmospheric humidity not only permits these potentials to mount, but also renders the nasal mucus thick and sticky, unfit to carry on the cleansing function of the cilia. The result often is a continuous low grade winter cold or now and then merely a vasomotor disturbance. Proper air conditioning of the home, especially proper humidification, is more and more appreciated by both the nose and rhinologists. Humidification at 45 per cent of saturation is most acceptable to man.

CONCLUSIONS

1. Rhinology is only three generations old. The understanding of both nasal and sinus physiology seems to be the keynote to the proper application of rhinology in both health and disease.

The treatment of both the nose and its adjacent sinuses should be neither radical nor conservative, but rational. There should be no routine. Each case is individual. What is radical care for one condition may be hopelessly conservative for another.

Someone has said with great insight: "If we would give our patients nearly as much attention before operation as we do after, our results undoubtedly would be much better." I would modify this statement and say: "If we would give our patients nearly as much attention before operation as we do after, now and then we would not have to operate."

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Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

"To the student of tuberculosis there would appear to be conflicting opinions in the minds of those directing anti-tuberculosis campaigns in different countries and states in recent years. This confusion is more apparent than real, and arises from the fact that different countries are featuring different majors while pursuing a general program.

"For health and tuberculosis workers at this time nothing could be more constructive than some thread of knowledge that would lead to a better understanding of the values and limitations of these methods of control."

With the above in mind Dr. R. G. Ferguson proceeds to analyze for us the strengths and weaknesses of the various methods for the control of tuberculosis in a paper which will be read with interest by all students of tuberculosis, and which contains some excellent suggestions for the general practitioner.

NON-SPECIFIC RESISTANCE

The importance of general resistance was well established before tuberculosis was known to be a germ disease; widespread tuberculosis was found associated with poverty; better living conditions provided some measure of protection.

Therefore in a community where the disease is endemic, and where the tuberculosis death rate is high, a good standard of living is excellent general treatment.

However, this has its limitations; it does not prevent infection. It gives inadequate protection to the non-resistant and cannot protect even the resistant against large and frequent doses of infection.

In areas where the death rate is low and infection no longer inevitable it is giving way to more direct measures aimed at the infectious nature of the disease.

The anti-tuberculosis program has since its inception stressed sanitary education and undoubtedly infection has been reduced as a result.

Nevertheless the protection conferred by sanitary habits is in a practical way also limited. It is acquired after long and intensive practice is maintained at the price of eternal vigilance and is subject to human error.

Perhaps the greatest benefit conferred by the modern sanatorium movement is not the lowering of the death rate by cures but the lowering of the infection rate by segregation and isolation which

has perhaps given us the key to the ultimate control and eradication of this disease.

Unlike the acute respiratory diseases which depend for their spread on many cases being infectious for a short period, tuberculosis is a more slowly developing infection and gives much more time to isolate it.

Isolation is now the most effective measure for the control of tuberculosis but in order for it to be effective there must be (1) ample bed accommodation, (2) the removal of financial barriers to treatment without flavor of charity, (3) the most efficient treatment procurable provided for all, and (4) institutions sufficiently comfortable to be acceptable to patients for indefinite periods.

As the death rate declines programs must become more selective, concentrating on those groups where infection is heaviest and which can only be determined by continuous epidemiological studies in the area under control. Such studies indicate the strength of the enemy, the location of concentration or weaknesses, and provide information for a plan of attack.

The clearing up of infection depends in many cases on the interest and energy of the family physician.

Where the incidence of infection is low and where the people are tuberculosis-conscious, the next step appears to be the supplying of free tuberculin to the family physician and his familiarization in its use as an aid in case selection.

UNIDENTIFIED SPREADERS

The greatest difficulty in clearing up tuberculosis is the infectious person with good tolerance who may spread the disease for years before falling sick. These persons appear to account for more than half the new patients admitted to sanatoria even where an advanced program is applied.

How to identify the near-well, chronic spreader, infectious, but not sick enough to report to a doctor, is the difficult problem in tuberculosis epidemiology.

One simple suggestion toward its solution is a more general use of sputum examination by the family physician.

It is not too much to expect that the family physician should take the responsibility of having the sputum of chronic coughers in his practice examined for tubercle bacilli.

There is perhaps no case-finding procedure a physician can follow which will yield higher returns for the same effort.

Sputum examination of chronic coughers would succeed in measurably reducing infection from now unidentified spreaders.

No program is complete which does not give due consideration to the re-examination of all ex-patients for an average period of four years after discharge. This re-examination is not only for the purpose of advising and assisting them to attain the greatest possible degree of recovery but is also for the purpose of picking out cases which become active and infectious and which require further treatment for recovery and segregation for prevention of infection.

The greatest flaw in the armor of anti-tuberculosis work today is failure to accomplish adequate case registration in the absence of which systematic follow-up of either ex-patients or contacts is impossible.

Registration cannot be achieved by legislation alone and as a statistical effort alone will fail. It must, to be successful, include an active follow-up service which provides advice, examination and treatment if necessary for patients and their contacts.

TUBERCULOSIS-CONSCIOUS

A fundamental of the anti-tuberculosis program upon which in the end all other tuberculosis activities depend is the tuberculosis-consciousness of the people.

The ailing individual must initiate the first step and come to the doctor.

When will he come? If he comes only on falling sick the great majority will come in an advanced stage of the disease; if on suspicion of early disease a large proportion will come in the early stage. How can he come on suspicion unless he has been taught to suspect tuberculosis?

While health officers, health nurses, family physicians, clergy, ex-patients, radio and press can accomplish a great deal, the responsibility could be shared with many thousands of fully trained teachers and "There appears no reason why health cannot be taught in school as successfully as can the three R's."

In a tuberculosis-minded community with modern facilities for diagnosis, tuberculosis can be diagnosed early enough and isloated early enough to reduce the spread of infection so rapidly as to convince us that it can be controlled and eventually reduced to a very minor cause of death.

Some Fundamentals in Tuberculosis Prevention, R. G. Ferguson, M.D. From the Canadian Public Health Journal, May, 1938.

President's Page

At our recent meeting in White Sulphur Springs the House of Delegates made an important change in our By-Laws relative to the election of delegates by county societies, the intent being to foster greater interest on the part of our county societies in the activities of the State Association by providing greater continuity in the annual make-up of the House of Delegates. At least half of those elected for next year will hold over for a second year, and consequently should be more useful in their second, and possibly succeeding years. This matter is important to *you* and is mentioned now with the hope that all our component societies will give serious consideration to the election of these truly important officers in their December meeting.

Closely related to this, and of equal importance, are the amendments to our Constitution and By-Laws, proposed at the last meeting of the House of Delegates providing for radical changes in the composition of this body. It would be improper for the writer during his term of office to express any opinion as to the merits of the proposed changes. Obviously they are directed against that type of government known as patriarchy which some of our members assert amounts even to oligarchy. I am convinced, however, that those members favoring the change are acting in good faith and are sincere in believing that such changes are for the Association's good and will promote harmony among its members. The suggestion already made to the avowed author of the proposed amendments, one of the Association's outstanding members, is here repeated: next year in ample time before our annual meeting have both sides of the controversy elucidated in our JOURNAL. This would enable the delegates to come with intelligently formed opinions so that the issue could be settled without the usual acrimonious display of personal animosity. Another suggestion made to me which seems quite good is for this occasion to have specially prepared paper ballots. Let us deliberate over this matter thoughtfully during the coming year and when the time comes to vote, forget petty personalities and do what we think is for the good of the Association. Time is a great healer.

Veering leeward for a moment, if you have not read *The Citadel*, a pleasant bit of entertainment is available. Written from the standpoint of Great Britain there are nevertheless interesting sidelights on the practice of our profession applicable to this side of the water; some bouquets with the brick bats.

President.

West Virginia Medical Journal

P. O. Box 787
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CHARLESTON, WEST VIRGINIA

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TRUST BUSTING HOG WILD

Those of our readers who have followed the economic section of the *Journal of the American Medical Association* relative to the Anti-Trust Charges are no doubt comforted by the nation-wide editorial comment rallying to the support of our parent organization. Already scores of the nation's leading columnists and editorial writers have rallied to the defense of organized medicine. It is hoped that our own county societies will utilize every reasonable means to secure additional local publicity against the prospective charges of the Department of Justice.

If the American Medical Association is a monopoly than certainly church, lodge, civic clubs and all other groups which secure reasonable membership control are also monopolies. If the charges against the American Medical Association are successful, we would not be surprised in the next following months to see in the daily press something like the following:

AND NOW THE BAPTISTS

Having cleaned up and straightened out the American Medical Association, the office of the Assistant United States Attorney General is now centering attention on the Lutheran Free Will Baptist Church of Sinks Grove, West Virginia. According to unconfirmed reports, the Sinks Grove congregation expelled a member in February, 1939, for loose morals and beating the pastor with a singletree. The Department of Justice is bringing monopoly charges against the church under the provisions of the antitrust law.

"Don't misunderstand us," a government official is reported to have said in a recent interview, "We are not accusing the Lutheran Free Will Baptist Church of Sinks Grove of moral turpitude. Nothing of the sort. We might say that some of our best friends are Lutheran Free Will Baptists of Sinks Grove and we know that they would not knowingly flaunt the laws of the United States. However, neither the Lutheran Free Will Baptist Church nor any other order of like kind or character has the right to defy our statutes and use expulsion as a means of furthering their own selfish ambitions."

Until this issue was brought into the open, it was not generally known that the Sinks Grove religious order was attempting to corner the religious market with monopolistic practices. It was pointed out in high governmental circles that if the Sinks Grove Baptist organization could use such high-handed tactics as expulsion to whip their members into submission, it would be impossible for American citizens to have free choice of church and preacher.

"This coercion must stop," said one high governmental official charged with the responsibility of signing republican appendectomy authorizations. "We have investigated the Sinks Grove situation and the expulsion there was not without provocation, but we simply cannot allow any church or any other organization to trammel the inalienable rights of free and unfettered American citizenship. Such situations," continued the RAA man, "if uncontrolled, lead to bolshevism and communism."

At a special meeting of the Lutheran Free Will Baptist Church board of deacons last week, held in the Sinks Grove place of worship, it was voted to reinstate the expelled member upon the promise of the member not to cudgel any more Baptist preachers. This action, however, was unacceptable to the Government; officials pointing out that the

damage had already been done. "We are after principles, not Baptists," it was said.

The prosecution of the antitrust charges will be watched with the keenest interest in legal circles. If successful in the present instance, the Attorney General's office next plans to tackle the Woman's Auxiliary Drill Corps of the Independent Order of Spotted Panthers. It was charged last fall that this organization reprimanded a member for throwing an empty gin bottle at Madam Commandant.

And by the way, here's a tip for the brain-trusters. Another good way of providing free service for the indigent sick is to convert them all to Christian Science. Then we'll just "think" we have socialized medicine.

PREPARING MANUSCRIPTS

After several years of scolding, during which time numerous editorials appeared relative to the proper preparation of JOURNAL scientific papers, the Editorial Board has finally "put its foot down" on single-spaced copy. In the future, all single-spaced manuscripts that are submitted for publication will be returned to the authors, with routine instructions to have their papers properly typed.

When one considers that each member of the JOURNAL Publication Committee is called upon to read, correct and revise between fifteen and twenty scientific manuscripts each month, the insistence upon double-spaced copy is readily understood. Single-spaced manuscripts are difficult to read and almost impossible to correct and revise.

For the past several years, the JOURNAL Editorial Board has been inclined toward leniency regarding improperly prepared manuscripts. In recent months, however, the number of carelessly typed papers has increased to such an extent that the committee is no longer willing to contribute the eye strain and midnight oil necessary for their proper perusal.

The new order is effective now. In the future, all JOURNAL manuscripts must be neatly typed and double-spaced.

BIRTH CERTIFICATE CAMPAIGN

In the early days of the present century, most birth records were kept in the family bible and the principal use of such records was to prove an occasional youngster legitimate or to get an errant son transferred from the state penitentiary to the reform school. With the oncoming complexities of modern civilization we have finally reached an age when birth records have taken a most important rôle in our scheme of life. Birth certificates are now demanded in hundreds of different situations, including school entrance, most forms of employment, establishing citizenship, inheriting property, settling insurance claims, voting and securing old age pensions.

In recent years, West Virginia has registered approximately 85 per cent of its births; five per cent lower than the percentage required for inclusion in the United States registration area. An effort to raise this figure and to secure maximum results in birth registration in West Virginia will be undertaken the week of October 3, which will be designated as "Birth Registration" week. The JOURNAL heartily endorses this campaign and urges the support of all Association members in making this birth registration drive a success.

The chief offenders in not reporting births, according to the Department of Vital Statistics, are unlicensed midwives. Also a large number of births go unreported because of "granny" deliveries. Strangely enough, licensed midwives are said to be better birth reporters than are physicians. Their percentages are about the same, but the midwives are more prompt.

We cannot help the situation so far as midwives and "grannies" are concerned, but we can all help by being accurate and prompt in our own reports. We can also assist during "Birth Registration Week," especially if we are asked to serve on any of the county committees promoting this important work.

EFFECTIVE PUBLICITY

Congratulations to the Academy of Medicine of Parkersburg and the Ohio County Medical Society!

In the fight against regimentation of the medical profession, both of these societies are rendering yeoman service. The Academy has brought about the publication of more than 20 articles in the two Parkersburg dailies bringing out the pitfalls of socialized medicine and sickness insurance. The Academy has also arranged for 13 weeks on the air over the local radio station to discuss this subject with the public.

The program of the Ohio County Medical Society is being handled through a special committee authorized at a special society meeting held at Wheeling on the evening of August 19. The Ohio County Society Committee plans to interview the various legislative candidates before proceeding.

Several meetings of the Advisory Board of the Kanawha Medical Society have already been held with some attendant publicity against medical regimentation. Additional publicity material is planned for September. In reports received from all three of these societies, it has been pointed out that the present fight was not against the extension of medical service for the indigent and near-indigent, but was opposed to any and all systems of medicine that would regiment the profession and subject the doctors to governmental and political control.

It is hoped that every county medical society will interest itself in this fight and utilize every reasonable and proper means to inform the public of the tremendous hazards and perils of all forms of politically controlled governmental medicine. The public is poorly informed on this subject at best, and every effort should be made to acquaint the laity with the true facts. Any society that is able to arouse sufficient public sentiment against socialized regimentation of the medical profession need have little fear of its congressional or legislative representatives. Such representatives follow public sentiment.

TWENTY-FIVE YEARS AGO

(Taken from the September, 1913 Journal)

STATE NEWS

The following is the reconstructed staff of the Ohio Valley General Hospital (formerly City Hospital) of Wheeling, W. Va.:

CONSULTANT STAFF

S. L. Jepson, M. D., G. A. Aschman, M. D., L. D. Wilson, M. D., John L. Dickey, M. D.

VISITING STAFF

In Medicine: W. P. Megrail, M. D., Andrew Wilson, M. D., H. A. Henderson, M. D., W. H. McLain, M. D., H. M. Hall, M. D., M. Gaydosh, M. D., O. D. McCoy, M. D., J. W. Spillman, M. D., Thurman Gillespie, M. D., R. U. Drinkard, M. D.

In Surgery: James Schwinn, M. D., R. J. Reed, M. D., E. A. Hildreth, II, M. D., F. LeM. Hupp, M. D., W. S. Fulton, M. D., N. A. Haning, M. D., W. A. Cracraft, M. D., O. M. Staats, M. D., C. M. Truschel, M. D., E. F. Glass, M. D., J. E. Burns, M. D.

HOMEOPATHIC SERVICE

John McColl, M. D. Obstetrician: R. M. Baird, M. D. Pathologist: John T. Thornton, M. D. Ophthalmologist-Laryngologist: H. E. Oesterling, M. D. Roentgenologist: W. A. Quimby, M. D.

STATE BOARD OF HEALTH

At the April meeting of the board, held in Huntington, sixteen applicants for license appeared. Of these ten were successful, as follows: F. J. Prunty, Belpre, Ohio; M. B. Williams, Wheeling; R. A. Ireland, Charleston; J. M. Spinks, Summersville; W. E. Riley, Gary. . . .

By reciprocity the following were received:

J. A. Wright, Weaver; C. B. Wylie, Morgantown; G. L. Todd, Princeton.

* * * *

THE MERCER COUNTY SOCIETY

This society now has a membership of 57, with 12 honorary members. It held a meeting on July 31st in Bluefield. The following was the program:

Cellular Determination of Sex—Percy J. McElrath.

Our Society; What it is and What is Should Be —S. R. Holroyd.

Report of a Case—I. W. Taylor.

C. F. St. Clair, Sec'y.

* * * *

Original articles in the JOURNAL this month were contributed by Doctors James R. Bloss, J. J. Goff, J. E. Cannaday, T. W. Moore and S. L. Cherry.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

HEALTH DEPARTMENT CHANGES

Dr. N. G. Angstadt has been appointed health officer for Wetzel county. He succeeds Dr. Hozier, who has acted in the capacity of health officer in the past year. Dr. Hozier, who is in the U. S. Public Health Service, is at present taking graduate training in syphilis control work at Johns Hopkins.

Dr. W. P. Hamilton, who has been health officer in Logan county, is going to Johns Hopkins University for a year's training in public health. Dr. Joseph Kinnaman, formerly director of Maternal and Child Hygiene for the State of Iowa, has been appointed health officer of Logan county to relieve Dr. Hamilton. Dr. Kinnaman has had ten years' experience in public health work.

Dr. Edwin Cameron has been appointed health officer for Monongalia county. Dr. Cameron has recently completed one year's training in public health work at Johns Hopkins University. In addition to his duties as health officer for Monongalia county, Dr. Cameron will act as director of the Public Health Training Center.

The Public Health Training Center has been moved from Beckley to Morgantown. This Center is to have as its training area Monongalia, Preston and Marion counties. The Center will serve as a training center for future health officers, nurses, and sanitary engineers. By such individuals spending six weeks at the Center, they will be introduced to public health procedures as applied to West Virginia. From time to time nurses and sanitary engineers will return to the Center for refresher courses.

As Morgantown is the site of our State university, it is an ideal location for such an activity. The educational facilities, together with the laboratory facilities of the Medical School, the School of Engineering, as well as the Department of Agriculture, afford excellent opportunities for the trainees. The University officials are interested in this endeavor and are anxious to cooperate.

The following changes have been made in the personnel of the State Health Department, effective July 1, 1938:

Dr. Thomas Blake, who has recently been Director of Maternal and Child Hygiene, and has recently completed a year's training in public health at Johns Hopkins, has been appointed director of County Health Work.

Dr. A. M. Price, formerly director of County Health Work, has been appointed director of the Division of Communicable Diseases and will devote his entire time to this department.

Dr. Thomas W. Nale, who in the past year has been assistant director of Maternal and Child Hygiene, has been made director of this division.

PRESCHOOL HEALTH CONFERENCES

The Division of Maternal and Child Hygiene of the State Health Department appreciates the fine cooperation that the practitioners of medicine have shown this past spring in assisting our Preschool Child Health Conferences. These conferences were held during May and June, 1938. Pediatricians, dentists, and general practitioners of medicine acted as clinicians in these conferences. Many gave their services gratis, for which we are much indebted to them. A total of 16,784 children were examined.

For this service this division has paid physicians a total of $4,174.50; of this amount $1,015.00 was paid to pediatricians and $3,159.50 was paid to general practitioners of medicine. In addition, dentists in West Virginia were paid $711.00 for the services they rendered in these conferences.

These conferences are a distinct advantage in that they afford a means of discovering remedial defects in children before they enter school. The real value of these conferences, however, can only be estimated by the number of remedial defects that are corrected. The practitioners of medicine and the dentists of this state are the ones to make these corrections. In addition, there is the educational value in that the family is impressed with the importance of at least an annual physical examination for children.

BOARD OF INTERNAL MEDICINE

Written examinations for certification by the American Board of Internal Medicine will be held in various parts of the United States on Monday, October 17, 1938, and on Monday, February 20, 1939.

Formal application must be received by the secretary before September 15, 1938 for the October, 1938 examination, and on or before January 1 for the February, 1939 examination.

Application forms may be obtained from William S. Middleton, M. D., Secretary-Treasurer, 1301 University Avenue, Madison, Wisconsin.

SURGICAL PATHOLOGY OF THE DISEASES OF THE NECK

By Arthur E Hertzler, M.D., Professor of Surgery, University of Kansas. 227 pages. J. B. Lippincott Co., Philadelphia, 1937.

As Dr. Hertzler mentions in the bibliographical note at the end of the first chapter of this his latest monograph, comprehensive treatises dealing with the surgical diseases of the neck are rare, so rare that this fact if none other suffices to make the present text a valuable survey of the field. Fortunately, aside from the need for a complete consideration of the subject, the author has designed his book with a view to usability, presenting in the initial chapter a dual classification of diseases of the neck, one pathological and the other based on topographical frequency of occurrence.

Separate sections are given to the primary lymph gland tumors: Hodgkin's granulomas, lymphosarcomas and lymphoepitheliomas. In less detail rare primary tumors of the neck are considered, and likewise the various benign tumors. Secondary tumors of the neck are considered from the standpoints of most frequent types, reactions, original sites and methods of spread. Inflammatory affections of the neck are logically grouped together with attention mainly focused on the lymphadenitides, the more rare ulcerative infections receiving only passing notice. A chapter on diseases of the vestigial rests includes the common congenital malformations of the region, with a short but informative discussion relative to carcinomas of the gill clefts. The author has taken the salivary glands under separate consideration and gives attention to both inflammatory and neoplastic conditions.

Surgical Pathology of the Diseases of the Neck is the ninth in Dr. Hertzler's series of monographs on surgical pathology. It is thoroughly illustrated from gross and histological standpoints with 206 photographs, photomicrographs and drawings. In the text Dr. Hertzler gives first the general considerations of the disease under discussion and then proceeds in order with a description of the pathogenesis, gross pathology and histology. Chapters are concluded with a brief bibliography and the author's comments upon the available literature.—Walter Vest, Jr.

ACHING JOINTS

"It must be admitted that there is evidence of a somewhat sensational truth in the weather prognostications of the man with creaking, aching joints." Studies have been conducted on arthritic patients and their reactions to the weather, which form the basis for this statement.

County Society News

CABELL COUNTY

The annual golf tournament between the members of the Cabell County Medical Society and the members of the Cabell County Bar Association was held at the Guyan Country Club on Thursday afternoon, August 4, 1938. This was a very pleasant occasion for both professions.

At the conclusion of the tournament dinner was served at the club house and trophies were awarded the winners.

A large attendance of both organizations marked the event.

OSCAR BIERN, M. D., *Chairman, Annual Golf Tournament Committee.*

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society met at Webster Springs, August 13, 1938. Following an excellent dinner the scientific program was presented.

W. W. Phillips, M. D., of Wheeling, held a clinic of skin diseases and then showed lantern slides and lectured on common skin diseases. D. A. MacGregor, M. D., Wheeling, read a very excellent paper dealing with the modern treatment of pneumonia.

G. E. Godman, M. D., formerly of East Mississippi Medical Society, Meridian, Mississippi, and now practicing at Jerryville, W. Va., was elected to membership in the society during a short business session.

The next meeting will be held in Buckhannon with A. B. Bowyer, M. D., B. L. Page, M. D., and I. F. Hartman, composing the Committee on Arrangements.

A. B. BOWYER, M. D., *Secretary.*

KANAWHA COUNTY

Doctor R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association, will address members of the Kanawha Medical Society on the evening of September 13, 1938, at the Daniel Boone Hotel, Charleston. Dr. Leland's topic will be "The National Health Conference." Dr. Leland's proposed visit has aroused much interest in the local society, particularly because of the timeliness of his subject.

Dr. Edward M. Livingston of New York City will present the scientific program for the October 11 meeting of the society. Dr. Livingston has se-

lected the following subject—"Abdominal Pain; Its Mechanisms and Diagnostic Significance."

The Kanawha Medical Society extends a cordial invitation to any physicians wishing to attend the above outlined programs or any future meetings of their society. The secretary of the society will be glad to send reminders to any physicians submitting their names and addresses.

A. SPATES BRADY, *Secretary.*

PARKERSBURG ACADEMY

The Parkersburg Academy of Medicine has prepared the following program for their official year beginning September, 1938 and ending May, 1939:

September 7, 1938—Opening session: Parkersburg Country Club, 9:00 p. m. Speaker: Dr. Franklin H. Reeder, State Registrar of Vital Statistics. Subject: "The Work of the Bureau of Vital Statistics." General business session, followed by smoker and refreshments.

October 5, 1938—Business and scientific session, City Hospital, 9:00 p. m. Speakers: Drs. Geo. Crile, Geo. Crile, Jr., and E. P. McCollough of the Crile Clinic. Subject: "Clinical Aspects of Endocrinology."

November 2, 1938—Business and scientific session. St Joseph's Hospital, 9:00 p. m. Speaker: Dr. S. F. Marshall, Senior Surgeon to the Lahey Clinic, Boston, Mass. Subject: "The Diagnosis and Treatment of Peptic Ulcer, and Surgical Emergencies of the Abdomen."

December 7, 1938—General business session, City Hospital, 9:00 p. m. Election of president, vice president, secretary-treasurer, and directors (four) for the ensuing year. Report of board of directors, report of secretary-treasurer. Meeting of board of directors following regular session.

January 4, 1939—Business and scientific program. St. Joseph's Hospital, 9:00 p. m. Speaker: Dr. A. M. Shipley of University Hospital, Baltimore, Md. Subject: "Surgery of the Thyroid Gland." Medical aspects of thyroid disease to be discussed by members of the local society.

February 1, 1939—Business and scientific program. St. Joseph's Hospital, 9:00 p. m. Speaker: Dr. Sidney Miller of Baltimore, Md. Subject: "Nephritis." Case reports by members of the local academy.

March 1, 1939—Business and scientific program. St. Joseph's Hospital, 9:00 p. m. Speaker: Dr. William D. Stroud of Philadelphia, past president American Heart Association. Subject: "Angina Pectoris and Coronary Disease."

April 5, 1939—Business and scientific program. City Hospital, 9:00 p. m. Speaker: Dr. O. Swineford of the University of Virginia, Charlottesville, Va. Subject: "Observations on the Diagnostic and Therapeutic Problems in Allergy."

May 3, 1939—Closing session of the year. Out-of-town physicians are cordially invited to attend any and all sessions of the Parkersburg Academy throughout the coming year. If any physician should desire a reminder of these sessions, please send name and address to the secretary, Dr. James L. Wade, 816½ Market Street, Parkersburg, and notices will be forwarded every month.

Obituaries

DOCTOR ASHBEL F. RUBLE

Dr. Ruble, a practicing physician in Elm Grove for the past 37 years, died on the morning of August 16, 1938, in the Ohio Valley General Hospital, Wheeling, W. Va. He was 70 years of age.

Dr. Ruble had been in failing health for the past three years, but had continued attending to his practice until a week before his death.

Born in Fayette County, Pennsylvania, a son of Rev. and Mrs. Jacob Ruble, he received his early education there. Later he was graduated from Franklin College, now Muskingum College, New Concord, Ohio. Dr. Ruble attended medical school at Ann Arbor for two years and received his degree two years later from the University of Cincinnati Medical School.

He came to Wheeling in 1901 and immediately opened his practice at Elm Grove where he has been a popular and prominent physician. Dr. Ruble was a member of his County and State Medical Associations and the American Medical Association. He is survived by his widow, one daughter, his parents and one brother.

DOCTOR HIRAM B. MARTIN

Dr. Hiram B. Martin, 57 year old surgeon died in St. Mary's Hospital, Huntington, August 23, 1938. Dr. Martin was a member of the St. Mary's staff, the Cabell County Medical Society, the State Association and the American Medical Association.

He was born in Seminary, Illinois, in 1883. Following his early education he was graduated from the Medical College of the University of Cincinnati in 1905. After practicing for a short while in Illinois, Dr. Martin obtained his West Virginia

license in 1917 and came to Huntington where he practiced until his death.

Dr. Martin was a first lieutenant in the medical corps during the World War and during his life in Huntington figured prominently in Masonic affairs.

DOCTOR HOMER ALLEN WALKUP

On August 19, 1938, Doctor Homer Allen Walkup died of a heart ailment in the Laird Memorial Hospital, Montgomery. He was fifty-nine years of age. Dr. Walkup has been in ill health for the past several years, forcing him to abandon his practice in Mount Hope where he had been located for many years.

Dr. Walkup received his medical education at the Medical College of Virginia, Richmond, Virginia. He was graduated from that school in 1914 and received his West Virginia license in the same year. Dr. Walkup's practice was limited in late years to internal medicine.

He was an honorary member of his County and State Medical Association and a Fellow of the American Medical Association.

RECREATION HINTS

Two general characteristics are inherent in all recreations worthy of the name: They must be enjoyable, and they must be diverting, as Dr. Dudley B. Reed declares in the fifth part of his series on "Exercise" appearing in the August *Hygeia*.

They are not recreations unless they take the mind from its ruts and divert it into new or different channels. If the activity is not enjoyed it passes out of the picture as a recreation. It may be exercise; but it is not recreative exercise.

Moreover, the activity chosen must be adapted to the individual's body and soul. That is, it must be of a degree of severity well within his powers, and he must enjoy it.

For those persons physically fit for it the advantage seems to lie on the side of physical recreation. And it is interesting to note that the more physical energy you use, the more you have, within certain broad limits. Therefore, energy wisely expended today means additional energy stored away for tomorrow.

A part of the responsibility for deciding what is adapted to your body can be passed on to your physician, whose examination will enable him to tell you whether you may take moderately severe, moderate, mild or only very mild exercise with safety and profit.

General News

BIRTH CERTIFICATE CAMPAIGN

The week of October second will be "birth registration week" in West Virginia. This was decided by a committee, composed of prominent state leaders and representatives of the United States Bureau of the Census, which met recently at the capitol.

The object of "birth registration week" will be to carry on an intensive educational campaign designed to make every citizen of the state aware of the importance of registering all children—not only newly born babies, but also children of every age.

In addition to the central or "state committee," local committees in every county are to be organized. These county committees will be composed of representatives from local agencies and organizations and of public spirited citizens. The central committee will cooperate with the county committees and furnish necessary printed material where needed.

The campaign will be carried on by means of newspaper releases, the radio, posters, handbills, speeches, distribution of other printed matter and, in some areas, by house-to-house canvas. Franked cards, requiring no postage, will be available for all those desiring to obtain birth certificates for their children. No effort will be spared to reach every individual whether living in populous cities or in remote rural sections.

The campaign is being sponsored by the State Health Department in cooperation with the United States Bureau of the Census. Already many statewide organizations and many prominent individuals have endorsed the campaign and have promised hearty cooperation.

In asserting that an effort to promote birth registration is essential at this time, Dr. Franklin H. Reeder, state registrar says:

"Many thousands of children in West Virginia are not registered and do not have birth certificates. Birth registration each year in the state is only about 85 per cent complete. This means that we stand among the lower one-third of states. The minimum standard for completeness of birth registration, as set by the United States Bureau of the Census, is 90 per cent.

"In an effort to provide every child with a birth certificate and to bring our state up to accepted

standards, the State Health Department has planned this drive to promote birth registration in all parts of the state. Every organization and every citizen is called upon to help."

NEW DOCTORS LICENSED

Forty-one physicians were granted licenses to practice medicine in West Virginia by the State Health Department on August 17, 1938.

They appeared before the Public Health Council last month at Elkins. Thirty-two of the physicians obtained their licenses by examination. The others presented reciprocity credentials.

Two doctors who obtained their licenses by examination are graduates of foreign medical schools. They are Heinz Oppenheim of Tuebingen, Germany, and Fritz Levy of Berlin, who will practice in Elkins.

Those receiving licenses through examination were:

William Ernest Ackermann, Jr., Wheeling; George Louis Armbrecht, Wheeling; Hyman Ashman, Powellton; William Paul Bradford, Moundsville; Robert L. Calvert, Chelyan; Dante Castrodale, Anawalt; Guy Wilson Daugherty, Fayetteville; Anthony J. Di Cello, Elkins; Charles H. Dow, Richwood; Richard E. Edmondson, Pemberton; Richard B. Engle, Longacre; Grover Cleveland Hedrick, Beckley; William E. Irons, Huntington; James Porter Jones, Pennsboro; Louis E. Kroger, Parkersburg; Donald H. Lough, Clarksburg; Joseph Francis McDonough, La-Crosse, Wisconsin; Richard N. O'Dell, Elkins; Uel Clinton Lovejoy, Laing; William Perilman, Wheeling; Newton D. Priddy, Switchback; Alvin H. Roemer, Elkins; Mendle Wallace Smith, Masontown; Starling Daniel Steiner, Follansbee; Joseph Marion Strong, Cleveland, Ohio; John B. Traul, Middleburg, Ohio; Edward Vacheresse, Jr., Wheeling; Robert Edwin Walker, New Matamoras, Ohio; George Darwin Wilson, Wellsburg.

Licenses through reciprocity went to:

Irvin Bensman, Milwaukee, Wisconsin; George E. Godman, Terry, Mississippi; Charles L. Goodhan, Chester, Maryland; Calvin F. Jackson, Fort Wayne, Indiana; Arthur Clinton Litton, Charleston; Harry Mickey Mican, Winnipeg, Canada; Robert A. McLane, Jr., Wilmington, Delaware; Ralph S. McLaughlin, Newton, Iowa; James Franklin White, Hundred.

POSTGRADUATE ASSEMBLY

The twenty-third International Assembly of the Inter-State Postgraduate Medical Association of North America will be held in the public auditorium of Philadelphia, Pennsylvania, October 31, November 1, 2, 3 and 4, 1938. All scientific and clinical sessions will take place in the auditorium. Hotel headquarters will be the Benjamin Franklin Hotel.

The members of the medical profession of Philadelphia are correlating for the clinics, an abundance of hospital material representing various types of pathological conditions which will be discussed by the contributors to the program.

In the neighborhood of eighty distinguished teachers and clinicians will appear on the program, a tentative list of which may be found on page xxxiv of the advertising section of this JOURNAL. The subjects and speakers have been selected to consider practically all the subjects of greatest interest to the medical profession in general.

A full program of scientific and clinical sessions will take place every day and evening of the Assembly starting each morning at 8:00 o'clock. On account of the fullness of the program, restaurant service will be available at the auditorium at moderate prices.

The members of the profession are urged to bring their ladies with them as a very excellent program is being arranged for their benefit by the Ladies' Committee. Philadelphia has many places of historic and other interests, which will make this year's program especially attractive to them.

Preassembly and postassembly clinics will be held in the Philadelphia Hospitals on Saturday, October 29 and Saturday, November 5.

It is very important that hotel reservations be made early by writing Mr. Thomas E. Willis, chairman of the Hotel Committee, Chamber of Commerce Building, Twelfth and Walnut Streets, Philadelphia, Pa.

The Association, through its officers and members of the program committee, extends a very hearty invitation to all members of the profession in good standing in their state and provincial societies to attend the Assembly. The registration fee is $5.00.

Dr. Elliott P. Joslin, Boston, is president of the Association; Dr. George W. Crile, Cleveland, is chairman of the Program Committee, and Dr. William B. Peck, Freeport, Illinois, is general manager.

Among the outstanding men who will appear on the Philadelphia program will be Dr. William F. Braasch, Rochester; Dr. Louis H. Clerf, Philadelphia; Dr. Crile, Cleveland; Dr. Walter E. Dandy, Baltimore; Dr. Nicholson J. Eastman, Baltimore; Dr. John C. Gittings, Baltimore; Dr. William D. Haggard, Nashville; Dr. Charles G. Heyd, New York; Dr. Chevalier Jackson, Philadelphia; Dr. Frank J. Lahey, Boston; Dr. Dean Lewis, Baltimore; Dr. Charles W. Mayo, Rochester; Dr. Fred W. Rankin, Lexington; Dr. Alfred Stengel, Philadelphia, and Dr. Cyrus C. Sturgis, Ann Arbor.

POSTGRADUATE CONFERENCE

With almost complete returns from the various centers in which this year's postgraduate conferences on obstetrics and pediatrics were held, it can be safely predicted that the 1938 attendance for these courses was approximately 75 per cent higher than in 1936 and 1937. Last year the average attendance at each lecture was 12. For the series just completed, the average attendance was approximately 20.

The courses this year were divided in a northern and a southern circuit. The northern circuit was handled by Dr. L. H. Douglas, Professor of Obstetrics at the University of Maryland, and Dr. T. C. Goodwin, Chief of the Division of Pediatrics, Baltimore City Hospital. The lecturers for the southern circuit were Dr. William F. Mengert of the School of Medicine of the University of Iowa and Dr. Lee Palmer of Louisville on pediatrics.

From the series of lectures just completed, there is evidence that more interest is manifested in obstetrics than in pediatrics. There was an average attendance of approximately 25 members for the obstetrical lectures and 16 members for the pediatric sessions.

The value of adequate newspaper publicity was demonstrated in Raleigh county. Prior to each postgraduate lecture, the Beckley newspapers carried a small advertisement requesting patients not to call their doctors during the hours of the lecture except for emergencies. In addition, straight news stories were carried prior to each session. The average attendance for the courses in Beckley was 31, which was the highest in the state. The Raleigh county arrangements were in charge of Dr. E. S. Dupuy. Good attendances were also reported from Logan, Fairmont and Weston.

SEMINAR ON SYPHILIS

Approximately 50 doctors, clinicians and health officers attended the postgraduate seminar on syphilis which was held the week of August 22-26 at the Daniel Boone Hotel, Charleston. The seminar was sponsored by the Venereal Disease Bureau of the State Health Department.

The first meeting was called to order Monday morning, August 22, by Dr. C. N. Scott, director of the Bureau, and the program was outlined by Dr. A. E. McClue, state health commissioner. Dr. Leonard E. Anderson, Associate Professor of Syphilology, University of Pennsylvania, was the morning speaker. He discussed pathogenesis and giology of syphilis, classification of syphilis, and laboratory and clinical diagnosis of early syphilis.

The afternoon program was presented by Dr. Scott on "Management of a Venereal Disease Clinic" and Dr. Edwin Cameron, Morgantown health officer, on "Case-Finding and Case-Holding Procedures." Dr. Anderson discussed various phases and aspects of syphilis treatment and control.

Miss Katherine Cox, director of the State Hygienic Laboratory, spoke on Wednesday afternoon on "Preferred Techniques, Problems and Adequate Control of Syphilis Serology." Dr. W. M. Sheppe, Wheeling, chairman of the Association's Syphilis Committee, addressed the seminar on Thursday afternoon on "The State Public Health Program for Control of Venereal Diseases." Dr. Sheppe also reported for his committee on the study and control of syphilis in West Virginia. The seminar closed on Friday afternoon, August 26, with a paper by Dr. J. Frank Barker, Huntington, on "Diagnosis and Treatment of Gonorrhea."

COMING MEETINGS

The third International Goiter Conference sponsored by the American Medical Association will be held at the Mayflower Hotel, Washington, September 12, 13 and 14, 1938. The scientific meetings will be open to all members of the medical profession in good standing in their county societies.

A postgraduate course on industrial hygiene sponsored by the Graduate Education Committee of the Allegheny County Medical Society and the Department of Industrial Hygiene of the Medical School, University of Pittsburgh, will be held at the Medical School from October 24 to 28, 1938, inclusive. The fee for the course is $50, $10 payable at registration and the balance at the start of the course. All registrations must be received by October 15. The class is limited to 45 physicians.

Woman's Auxiliary

CONVENTION TRANSACTIONS

The Woman's Auxiliary to the West Virginia State Medical Association held its fourteenth annual meeting in White Sulphur Springs at the Greenbrier Hotel, July 11, 12 and 13, 1938. All meetings, luncheons, etc., were held at the Greenbrier.

Registration was begun at two o'clock p. m., Monday, July 11. It may be remarked here that the total registration was very satisfactory, comparatively speaking.

A meeting of the board was held at three o'clock p. m. on Monday in the Virginia Room. Mrs. E. H. Starcher, president, presided. Following an executive session, the meeting was adjourned and the evening following was free of any Auxiliary activities.

Tuesday morning, July 12, witnessed the formal opening of the Auxiliary Convention. Mrs. Starcher presided over the large crowd in attendance. Following the customary invocation, address of welcome, etc., the reports of the various committee chairmen were heard.

The recording secretary, Mrs. W. C. D. McCuskey, submitted her report, followed by the reports of the corresponding secretary, Mrs. J. Lester Patterson, and treasurer, Mrs. B. B. Nicholson. The auditor's report was read by Mrs. McCuskey. These reports were all accepted and approved.

The standing committee chairmen who were present submitted their reports.

An organization report by Mrs. F. S. Harkleroad of Beckley was heard. The report included total membership of Auxiliary for State—approximately 450; number of county Auxiliary organizations—12 (2 pending) and various other data in regard to organization work.

Mrs. H. F. Troutman, chairman of Public Relations, stated in her report that a list of free literature obtainable from the State Department of Health was sent to each county Auxiliary with the request that suitable literature on health be placed in all the schools of their counties during 1938. Mrs. Troutman also submitted reports from the County Auxiliary Public Relations Committees.

Mrs. Harry V. Thomas of Clarksburg submitted the report of the Program Committee. A study of the public health laws of West Virginia was the project stressed during the past Auxiliary year. Mrs. Thomas stated in her report that the activities and the interests of the individual counties were most commendable and she expressed her thanks for the promptness and cooperation shown in program planning. A summary of programs planned by the county Auxiliaries during 1937-1938 was read.

The report of the *Hygeia* chairman, Mrs. H. P. Evans of Keystone, was read and accepted. Mrs. Evans stated in part:

"I find the *Hygeia* magazine is becoming more and more popular as it is more widely read, and I believe we should appoint *Hygeia* chairmen in each Auxiliary who will work diligently to increase subscriptions among the laity as well as among the medical profession and members of the Auxiliary."

Mrs. R. C. Bond of Wheeling, historian, presented a very interesting resume of Auxiliary history for the past year. Mrs. Bond summarized in her report all data and information which she had received throughout the year from the various county historians.

The exhibit chairman, Mrs. Jessie V. Ratcliff of Huntington, presented her report which was approved and accepted. Mrs. Ratcliff reported that arrangements had been made for four major exhibits during the year; one at the Parent-Teachers' Association Convention in Huntington, the second at the State Educational Association Convention in Clarksburg, the third at the Public Health Association meeting in Charleston and the fourth at the State Federation of Women's Clubs in Fairmont.

Mrs. Russel Kessel of Charleston presented her report as chairman of the Committee on Archives of the Woman's Auxiliary. Mrs. Kessel stated that the archives file had been revised and all clippings had been mounted and incorporated in standard size bindings.

The reports of the chairman of Legislation, the Parliamentarian, chairman of Press and Publicity, Research and Romance and the Special Projects and Speakers' Bureau were read and approved.

The President's Address by Mrs. E. H. Starcher was received with the greatest interest and enthusiasm.

After various announcements were made the Committees on Budget, Elections and Resolutions were heard from.

Miss Dorothea Campbell, Charleston, representative of the State Health Department, made an address entitled "West Virginia Health Laws." This talk concluded the Tuesday morning program.

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WALTER E. VEST
Editor
955 Fourth Ave.
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MR. JOE W. SAVAGE
Business Manager
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ASSOCIATE EDITORS:
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HUMAN BLOOD AS A THERAPEUTIC AGENT*

By CHARLES B. CHAPMAN, M. D.
Welch, West Virginia

From remote antiquity blood has had a tremendous symbolic power. The blood sacrifices of the Bible attest to its significance in religion. We find the ancient Egyptians using "blood baths" for resuscitation and recuperation, and Pliny and Galen discussed the drinking of blood flowing from dying gladiators as a cure for epilepsy.[1]

The most widespread use of human blood in medicine is by means of blood transfusions, the history of which dates back over 400 years and possibly even to the times of Greek mythology. It has been recorded, although some authors say it is a myth, that in 1492 Pope Innocent, VIII, was transfused with blood from three youths by a Jewish physician. Andrea Libarius, in 1615 definitely advocated blood transfusion by means of a silver tube between the donor and recipient. It is doubtful whether he actually carried this out.

The real beginning of blood transfusion, however, dates to the discovery of the circulation of blood in 1616. In 1656 Sir Christopher Wren studied the injection of medicaments into the veins of dogs by means of slender quills fastened to bladders. In 1665 before the Royal Society, Richard Lower transfused dogs by connecting the carotid artery of one to the jugular vein of the other by means of quills or silver tubes. Although the English thought of doing blood transfusions in humans at this date, they apparently were reluctant to experiment on human subjects until Jean Baptiste Denis, physician to Louis, XIV, in 1666 transfused nine ounces of lamb's blood into the veins of a young man for a fever. It was stated of this patient that "he grows fat visibly and in brief is a subject of amazement to all those who know him and dwell with him." A few months later the English started working on humans and in 1667 experimentally transfused a man with lamb's blood. The inimitable Pepys in his diary discusses the event and states that he had conversation with the experimental subject who was a sort of preacher whom he thought "was cracked a little in his head."

*Oration on Medicine, read before the West Virginia State Medical Association, White Sulphur Springs, July 13, 1938.

However, the operation quickly fell into disrepute because of fatalities due to hemolysis.

FIRST USE OF HUMAN BLOOD

Following this for almost a hundred and fifty years there was little reference to transfusion. In 1792 at Eye in Suffolk, a Dr. Russell was supposed to have transfused blood from two lambs into a boy with hydrophobia and cured him. In 1796 the father of Charles Darwin recommended transfusion, but it is doubtful if he ever performed the operation. The use of human blood as the agent for transfusion rather than animal blood was started in 1818 by Blundel of Guy's and St. Thomas' Hospital in London,[2] when he used it in obstetrical hemorrhage. Although the first four of his patients died in spite of the transfusion, he persisted and worked with it in experimental animals. He found that individuals of the same species were best to use as donors, that venous blood was as good as arterial, that a syringe could be used without damaging the blood, and he even invented a valve syringe for transfusion. Following this the use of blood was mostly confined to patients with acute hemorrhages. In 1869 one hundred and fifty-five cases of transfusion were collected. Subsequent to 1874 nearly all the important advances in the science of blood transfusion were made in this country with one great exception.[2] Following the introduction of saline about this time, blood transfusions were not used much for thirty years, although we find reference to Halstead[3] in 1881 using a syringe to transfuse blood from himself to his own sister; and about the same time also advocating the use of blood transfusion in carbon monoxide poisoning. Following the work of Murphy in the 90's and Carrel a little later on blood vessel surgery, Crile developed his method of artery to vein anastamosis in transfusion which was published in 1907, although he did his first transfusion in 1905 in a case of exophthalmic goiter.[10]

The present widespread use of blood transfusion is based on the discovery of isoagglutination in normal blood and of blood groups by Lansteiner of Vienna. Fatal reactions to a large extent have subsequently been eliminated by the application of this knowledge. In 1901 he published his paper on the grouping of human blood by their agglutinating qualities and definitely suggested the relation of this grouping to reaction following blood transfusion.[3A] In 1930 he received the Nobel prize for this work. He discovered groups as he called them A, B, and C which are now groups II, III, and IV. The rare group AB or I with Moss classification was discovered a year later (1902) by his students, Von DeCastello and Sturli.[4] In 1908[3B] Landsteiner summarized his classification of blood groups which is now the accepted universal classification of O, A, B, and group AB which would correspond to groups IV, II, III, and I respectively of Moss which most of us use.

Although Hektoen[4A] published an article in 1907 advising the use of these blood groups for selecting donors, apparently Dr. Rueben Ottenberg of New York in the same year was the first in this country or Europe to use blood groups clinically in transfusion.[5]

In 1910 Moss published his work on blood transfusion and his classification.[6] His greatest contribution was that hemolysis practically always followed agglutination, and that the tests for hemolysis might thus be disregarded if the agglutination test was negative, although recently this has been questioned.

DEVELOPMENT OF THE TUBE

From then on the various methods we have at present for transfusion were perfected. In 1913 Kimpton and Brown developed their tube and used it first on a case of septicemia.[7] It is interesting that in this case the radial artery of the donor was used rather than one of the veins. In the same year Lindeman published an article on his method of multiple syringes which he adopted from Ziemssen who worked it out in 1892.[5] Percy in 1915 came out with a modification of the Kimpton-Brown tube in which the blood was taken from the vein of the donor.[8] Also in 1915, Lester J. Unger announced his transfusion apparatus. In 1914 L. Agote devel-

oped his method of citrate blood transfusion in Argentina; and independently Hustin of Brussels and Lewisohn of New York developed their methods and published them in late 1914 and early 1915, respectively.[9] However, Lewisohn gets the credit for developing the technique as it stands today. It is an interesting fact that much of the practical work in methods of transfusion has been developed at Mount Sinai Hospital in New York; Lewisohn with his citrate method, and Unger with his apparatus, as well as Ottenberg who was first clinically to use blood groups in transfusion, worked at the Mount Sinai Hospital.[5]

INTRODUCED INTO BRITISH ARMY

Although transfusion was used fairly frequently in this country before 1914, almost nothing was known in the British Army of the possibilities of blood transfusion during the first two years of the war. In 1916 an attempt was made to introduce Bernheim's cannula. This, however, was too difficult for use in advanced dressing stations. Keynes states that it was not until 1917 when the British Army Medical Corps was being steadily reinforced with officers from the United States that the knowledge of blood transfusion began to spread through the Allied armies. Because of its simplicity, the citrate method was extensively used although other methods were not excluded.

I ran across an interesting incident[10A] which might be related in this connection. Sir William Osler lost his only son in the World War from a high explosive wound in the chest. It was of great satisfaction to him to know that several of his old American friends including Dr. Harvey Cushing and Dr. George Crile were in attendance. In communications from Dr. Crile and Dr. Cushing I was advised that transfusions given the boy were performed with a French paraffined tube similar to that of Kimpton and Brown.[10].

As during the World War the use of blood transfusions was spread through the Allied armies, so at the same time the practice was adopted more generally in West Virginia. On a query to a number of our older surgeons, I find that probably the earliest one to do a transfusion in this state was Dr. McClung of Richwood, who did an artery to vein transfusion in 1912. Other men reported they were experimentally using it on dogs in the state before this time. However, Dr. William Andrew McMillan states that he first injected blood intravenously in 1907 or 1908 when he gave 40 or 50 c.c. with normal saline to a man suffering from gunshot wound with hemorrhage. Our past president, Dr. William S. Fulton, wrote me a few days before his death that he was certain they were using the citrate method and the Lindeman method in 1917 in Wheeling. Dr. J. E. Cannaday and Dr. R. H. Walker informed me that transfusion was first used in Charleston in 1915 and 1916. Dr. Robert J. Wilkinson informed me that in 1916 they were using the multiple syringe method in Huntington. Drs. J. F. Fox, Wade H. St. Clair, and Chas. M. Scott in Bluefield in 1916 and 1917 were giving blood transfusions. The first transfusion given at the Ohio Valley General Hospital was by Dr. O. M. Staats on February 13, 1917. Dr. J. R. Caldwell gave the first transfusion at the Wheeling Hospital in 1915 by the Lindeman method. In Clarksburg transfusions were being used in 1915 at St. Mary's Hospital. Thus, we find in association with men in larger institutions outside the state, such as the Mayo Clinic where the Lindeman method was adopted in 1914, the physicians of our state were using various methods of blood transfusion shortly after their development. Following this, the use rapidly spread through West Virginia and since 1920 several articles have appeared in the JOURNAL on blood transfusion. Our president, Dr. C. W. Waddell, was early interested in this subject along about 1917, especially in blood groups and methods of grouping and was the first one in the state as far as I can find now, to publish an article in our JOURNAL on transfusion, which was in 1920. In 1921 Dr. L. D. Culvert published an article on blood transfu-

sion followed by Dr. Bankhead Banks in 1929, and Dr. L. C. Davis in 1930.[11] A query made to the hospitals of the state (Table I)

TABLE I
WEST VIRGINIA TRANSFUSION RATE

1936 Transfusions	1937 Transfusions	Beds General	No. Trans. Divided by No. Beds in 1937
159	193	80	2.4
12	16	50	.32
547	763	185	4.1
25	26	65	.4
374	559	230	2.4
25	52	100	.52
157	194	100	1.94
8	25	16	1.5
55	43	50	.86
23	40	29	1.37
27	76	110	.69
246	323	110	2.9
52	109	80	1.36
114	138	75	1.8
55	94	100	.94
28	27	60	.45
Total—1,907	2,678	1,440	1.85

shows extensive and increasing use of transfusions. A perusal of the data on the number of transfusions in the hospitals reporting, shows an increase of from a few per cent to several hundred per cent in 1937 over the preceding year. These data also show a considerable variability as to the number of transfusions given in the different hospitals when compared with the bed capacity. When we compare the transfusion rate in our institutions with those of other communities (as noted under Table II and III), we find a

TABLE II
TRANSFUSION RATE AT MAYO CLINIC

1936 Trans.	Patients	1937 Trans.	Patients	Beds	Index Trans/Beds
2,058	1,073	2,805	1,306	1,023	2.74

NEW YORK CITY HOSPITALS

No. Hosp.	Beds	1936 Trans.	Index Trans/Beds
60	24,877	10,609	.42

TABLE III

There were a total of 5,688 transfusions in 25 private general hospitals replying for 2-year period, 1936-1937, with bed capacity of 2,000. Thirty-three private general hospitals not replying had a bed capacity of 2,225 with an estimated number of transfusions of 6,230. Thus, there was an estimated total of 11,918 transfusion for the 2-year period in this state.

rather high incidence in our state. The indications for transfusion may thus vary considerably, and might suggest the need for more study along this line.

These indications for blood transfusion have probably not changed essentially for 70 years. Snyder[12] quotes the following summary made by Leisrivk in 1872 "transfusion is indicated in all those pathologic conditions where blood in quantity and quality is so altered that it is unfit to fill its physiological duties." In detail this would include shock, hemorrhage, and extrinsic toxemias such as carbon monoxide poisoning or benzol poisoning and intrinsic such as toxemias of pregnancy, septic condition, secondary anemias of any type, blood dyscrasias, infectious diseases, and vitamin and hormone deficiency diseases. In the light of modern physiological chemistry and immunology we could say that transfusion might be indicated at times to supply such vitamins as are needed in general or specific deficiencies such as the hemorrhagic disease due to vitamin K and prothrombin deficiency. Also it is used in edema where blood proteins are low and the osmotic pressure is diminished; in diseases where fibrinogen and other clotting elements are depleted; and in infection to increase complement and furnish needed antitoxins and antibacterial elements.

SELECTION OF DONORS

It would be superfluous to go into the details of the laboratory aspect of selecting donors at this time, but a few recent variations of technique might be described. It has been known that serum of high titer is essential for accurate grouping; that it picks up and types blood that is weak in agglutinating factor in the red cell.[4] We have been warned about the indiscriminate acceptance of commercial typing serums, as these have been recently tested and in many cases were found to be of low titer.[13] The necessity of using a five per cent suspension of the donors cells in saline has been reemphasized as the best method for grouping bloods which have slight agglutinating powers.[4] Twenty-five per cent of groups I and II have these weakly agglutinating red cells.[14] Some institutions have adopted the test tube method of grouping and cross-matching with the aid of the centrifuge, a modified Landsteiner technique. This technique rules out anomalous groups which may cause reaction.[15] Cross-matching

has been reemphasized as essential, as it is a check on the indirect method of grouping. In cross-matching one must be careful to distinguish pseudo agglutination or rouleaux formation from the true agglutination. The former is found in patients' serums with high sedimentation rates and can be eliminated by dilution of the serum as is done with the test tube method of cross-matching. The use of the rapid Kline test for the exclusion of syphilis has been advocated recently.[16] Physical examination of the donor immediately before transfusion is indicated in that seronegative chancres may be associated with a spirochetemia with its attendant danger for the recipient. Also by careful questioning and physical examination, other transmissable diseases can be ruled out.

METHODS OF ADMINISTRATION

For administering the blood, any of the three or four standard methods are satisfactory and in more or less universal use, such as the syringe method, the Unger method or its modifications, the paraffin tube method, or the citrate method. Of all these methods the citrate technique in this country is the most generally adopted because of its simplicity. The Mayo Clinic has used this method entirely since its introduction in 1915.[17] Dr. Ottenberg tells me that in the last thousand transfusions at the Mount Sinai Hospital where the Unger and the citrate methods were developed, the citrate method was used entirely with very occasional exception. In regard to the choice of apparatus we find that the ball valve machine of Sorsi has been condemned because of the possibility of the recipient's blood being injected back into the donor.[18] With the increasing use of the refrigerated blood the outfit described by Cooksey and put out by the Baxter people is of value.[19] At least one large clinic uses a modification of this apparatus.[17]

Another change in the citrate method has been introduced at the Mount Sinai Hospital in New York by Dr. Lewisohn. Thirty per cent citrate in five c.c. ampoules undiluted is now being used instead of large ampoules of two and one-half per cent with which most of us are familiar. This has resulted in reduction of cost and has been found to be entirely satisfactory.[4]

Recently, the British method[20] of massive blood transfusion in gastrointestinal hemorrhage has been introduced into this country. A modification of it was reported on at this year's meeting of the American College of Physicians, by Dr. George Eusterman. In this technique 100 c.c. to 150 c.c. of citrated blood per hour is given by a drip apparatus until the hemoglobin is elevated to 70 per cent. The time required to bring this about varied from twelve to forty-eight hours and the average amount of blood given was 2700 c.c. The tendency to bleed is decreased; the blood urea which is elevated in these gastrointestinal hemorrhages diminishes rapidly and in two or three days the patient is in condition for surgery if necessary. No fear of increase in the blood pressure with continuation of the hemorrhages is anticipated by this technique. However, even by the usual method this danger is slight.

TRANSFUSION IN CHILDREN

Because of the difficulty of transfusion in infants and children, there is a constant attempt to make the operation easier. Apparently transfusion through the fontanelle has fallen into disrepute. In our experience it has an adverse effect on the relatives. The intraperitoneal method introduced by Siperstein and Sansby in the early 20's has had some advocates and apparently is useful where the indications are not so acute, as the absorption of blood is slow. For the past year Tuohy at the Mayo Clinic has been experimenting with transfusion into the abdominal aorta and will shortly publish an article on this method.[17] It is often necessary to cut down on the veins to transfuse infants or children successfully. This may be done repeatedly if indicated or the cannula may be left in the vein for several days by using a flush fitting stylette.

When we come to the contraindications, we find that the only really universal contra-

indications are cardiac decompensation and pulmonary edema. However, even in cardiac decompensation this may not be a definite contraindication if the blood is given slowly in small amounts. We are also warned especially in regard to hemolysis in the blood diseases such as leukemia, lymphosarcoma, hemolytic jaundice, and agranulocytosis.[21]

Although transfusion is usually without accident, a review of the dangers and reactions due to its use are in order. Recently a number of bad results have been published and extend a warning. In a recent survey Levine, et al[18] in New York found forty out of three hundred and fifty hospitals reporting some form of accident following transfusion. The chart shows a short series of severe reactions and deaths which I have been able to collect with little difficulty.[22] (Table IV).

TABLE IV

Author	Number Severe Reactions	Number Deaths	Number Transfusions
Philip Levine, et al, 1938.....	60	16	—
Elmer L. De Gowan, 1938.....	13	7	3500
Polayes & Morrison. Quoted by Parker, 1935.....	3.7% (55-56 cases)	.9% (13-14 cases)	1500
C. G. Culbertson & A. W. Ratcliffe, 1936.....	—	1	—
W. Keith Burwell, 1931.....	—	1	500
Robert R. Bates, 1937.....	10	6	525
Yudin (cadaver blood), 1936....	—	4	924
Charles Baron, 1932.....	—	1	—
Hesse, quoted by E. Balgair — L. Christiaens, collected from 1700 hospitals in Europe, 1937.....	217 cases hemolytic shock		
W. Goldring & Irving Graef, 1936	11	3	—
F. Pygott, 1937.....	—	7	—
Sharp & Davis, 1938 collected...	3	4	—

Anuria from a toxic nephrosis due to hemolized blood, pulmonary edema, and immediate shock are the usual modes of exitus noted in the transfusion of incompatible blood. In one study, fifty per cent of these accidents were due to errors in grouping, but in many cases careful retyping and cross-matching have failed to uncover an incompatibility.[23] Others have reported reactions after repeated use of the same donor and with group IV donors.[24]

In this state from the twenty-five reporting hospitals, there were thirteen deaths over the years since the beginning of transfusion in which the operation itself could possibly be implicated. Several of these were due to improper typing in which the physician or technician made a mistake. Several were due to overloading the heart. Because of these mistakes in grouping, I personally feel that it is very essential both to type and cross-match patients and donors. Because of the dangers of overloading the heart, especially in infants, the blood should be given slowly and the patient watched carefully during the transfusion. Such observation will detect the earliest signs of incompatibility in time to stop the operation before it has gone too far. This is also the reason given for not transfusing unconscious patients if possible. In order not to overload the heart, according to most authors 15 to 30 c.c. per kilogram of body weight is the amount given to infants, the lower figure is in my opinion usually the more desirable.

TREATMENT OF ACCIDENTS

Various methods of treatment of transfusion accidents are used. Adrenalin is the most popular. Recently De Gowan, et al and Baker and Dodd in 1925,[22] have advised alkalinization of the recipient before transfusion, basing their treatment on the results of experiments with dogs. Hesse in Russia has advised retransfusing immediately with compatible blood in case of reaction.[24] Waytek has had three cases in three hundred and fifty transfusions whom he treated with this method and apparently saved their lives.[25] Fantus states that at Chicago Cook County Hospital the minor reactions have been reduced from 33 per cent to four per cent by the use of preserved blood and more careful technique.[26] In 1937 at the Mayo Clinic[17] with 2805 transfusions their percentage of reactions was 9.7. In our group of 352 transfusions we had reactions in 9.5 per cent.

Some authors warn against the dangers of the use of group IV donors as the "universal donor."[24] Among the 217 hemolytic accidents collected by Hesse, 48 were due to group IV donors and he thinks that there

might be four per cent of the group IV donors who are dangerous because of high serum agglutinin titer. Reactions occurred in 10 per cent of our cases following transfusion with a universal donor. This was about the same as the general average for all other types. From Levine's survey we find that two-thirds of the 350 hospitals in the United States reporting to him use the "universal donor" rarely or not at all. We are warned against it where the blood volume of the recipient is low such as in the presence of dehydration, in severe blood loss,[24A] and in infants. At Saurbrook's Clinic in Germany the group IV donor is not used.[25] At Mayo Clinic the group IV donor resulted in 9.4 per cent reactions.[17] This percentage was about the same or less than where donors of other groups were used within the same group. However, there may be a real danger in group IV donors which probably could be eliminated by the previously described test tube and centrifuge method of blood typing and matching and by getting the agglutinin titer. It is essential from many standpoints to eliminate these reactions. It has been found that in addition to all other untoward results, reactions nullify the effect of the transfusion.[17] The following are suggested as an aid in eliminating reactions. It seems to help to have the donor come in with a fasting stomach.[17] Patients will often say that they do not want to be transfused from a donor who has just eaten because of the greater tendency of chills and fever after such a transfusion. It is essential to handle the blood as gently as possible to prevent incipient changes capable of producing reaction. Slow delivery of the blood from the vein of the donor is contraindicated for the same reason. Chemical cleanliness of the apparatus is of importance. To emphasize this point, I will give in detail the method of cleaning the apparatus used at the Mount Sinai Hospital where it was developed by Lewisohn.[27] After its adoption reactions were reduced from 12 to one per cent. (Table V).

TABLE V

1. Disassemble apparatus and wash in cold water.
2. Wash each part in dilute green soap and one per cent lysol.
3. Rinse in tap water.
4. Boil five minutes in 0.1 per cent sodium hydroxide in large pan.
5. Wash in triple distilled water.
6. Assemble and sterilize.
7. Sharpen needles and boil for three minutes in sodium hydroxide 0.1 per cent.

Another danger of transfusion is transmission of disease. It is quite evident except in extreme emergencies that the donor should be interviewed, examined physically, and his blood tested for syphilis. From the twenty-five hospitals giving complete reports to me in the state there have been two cases of transfusion syphilis. Levine in his study of blood transfusion in America recorded three cases of syphilis and one case of malaria transmitted by donors. However, such accidents apparently are more frequent than can be found in the records. I have had experience with one case of transfusion malaria. The patient was given small doses daily of refrigerated blood from the same donor which resulted in a multiple infection with the quartan parasite and daily chills. Hendrick in 1935[28] after a review of the literature reported thirty-five cases of syphilis, thirty cases of malaria, three cases of measles, three of allergy, and three of tuberculosis transmitted by blood transfusion. Discussing the control and prevention of transfusion syphilis, Rein, Wise and Cukerbaum[16] in a study of sixty New York hospitals found that 18 per cent did not examine their donors at all clinically. They discovered 68 cases of transfusion syphilis in the literature. Nineteen cases were reported to them by four of their colleagues. In discussing their paper Dr. I. W. Kahn says in 1934 and 1935 when he had charge of blood donors in New York City he found eleven unreported cases of transfusion syphilis. He stated that a number of these have started lawsuits. Dr. Rein states that the Kline exclusion test would rule out syphilis within a few days after the primary lesion appears. However, as noted before, syphilis has been transmitted where the

donor was in the seronegative chancre stage. One case reported to me in this state has probably been of this type. We might thus conclude that a clinical examination is also essential for the donor.

RECENT ADVANCES

In regard to some of the more or less recent advances I will first take up immune transfusion in the treatment of septicemia and other septic conditions. Kolmer[29] states that Sir A. Wright of England was first to use and name this type of transfusion when he added stock vaccine to blood and let it stand for several hours before giving it to the patient. He further states that he has given one billion staphlococci as a vaccine subcutaneously to a donor four to five hours before transfusion. Others used donors vaccinated with the patient's germs in subacute and chronic cases of streptococcic and staphlococcic sepsis. Kolmer also states that he is especially impressed by the method of Brody and Stephenson of giving 50 to 75 million B typhosus as a vaccine intravenously to donors 3 to 7 hours before they are to be used. He states that he has seen results after this treatment that may be superior to plain transfusions. Lyons[30] states that the ability of a donor's blood to destroy bacteria can be determined by testing the donor's leukocytes against the culture of the patient's infecting bacteria. In this way a suitable donor can be determined. In hospitals as well as in general practice, it might be worthwhile to keep a special record of those patients who have recovered from illnesses of streptococcic origin, such as, streptococcic sore throat, streptococcic complications of the ears and mastoids, septicemia, cellulitis, multiple abscesses, erysipelas, and scarlet fever or in fact of any severe infection with any type of germ. In this way one would be able to pick a donor with specific bactericidal antibodies for septic states. The following case is illuminating in this connection: A child was brought in with an acute upper respiratory infection, high temperature, cough, and red throat and fluoroscopy of the chest revealed slight mottling in one base. We placed it in bed, gave the usual medical treatment without apparent effect. Repeated fluoroscopy as well as physical examination showed a shifting of lung findings from lobe to lobe. The urine was negative. The child did not seem especially sick, coughed considerably, but ate well and played somewhat at the time the temperature was not up. Transfusion was given from a donor who had been in the hospital two years before with acute infectious arthritis at which time we were unable to determine the type of the infecting organism. The donor rapidly recovered without sequelæ from this infection. Several months later he was operated on for a ruptured appendix, much pus was found in the peritoneal cavity. Following this he got well, also without much trouble. Here then was a donor who had apparently a high titer of bacterial antibodies. After a septic course of twelve days the child's temperature became normal within a few hours following a transfusion from this man. The same immediate response we have found in other cases, especially in erysipelas. At times transfusion seemed to be specific, possibly due to the donor's high antibody content. The use of sulfanilamide may modify this type of treatment; however, because of the high mortality, with every method it seems worthwhile to use all agents against these severe infections.

PRESERVED CITRATED BLOOD

Although the transfusion of preserved citrated blood has been advocated for years, the actual use has become quite widespread only recently. Last year at the Mayo Clinic[17] preserved "icebox" blood was given to four hundred and twelve of the thirteen hundred and six cases transfused, with a definitely less reaction per cent than in cases where fresh blood was used. Jeanneney and Vieroz reported twenty-one patients who were given blood preserved up to twenty-one days in the icebox with clinical response equal to that where fresh blood was given. The increased use of refrigerated blood has led to the development of the so-called "blood

bank" by Fantus[31] at the Cook County Hospital of Chicago which has spread to other cities such as Philadelphia and is now being instituted in New York. In this scheme the citrated blood from voluntary donors, from cases of decompensated heart and hypertension, from obstetric patients several weeks antepartum, from mothers who are bringing their children in for pediatric services, and from patients who are having elective operations, will be deposited in a central refrigerator from which deposit blood could be withdrawn for transfusion at once when indicated for any patient. This blood would be bacteriologically and serologically tested as to groups and syphilis.

THE PLACENTA AS A SOURCE

Another almost inexhaustible possible source for preserved blood is blood from the placenta. This was apparently first introduced in Russia in 1936 and studied and reported on in February, 1938, from St. Mary's Hospital in Montreal.[32] One hundred to one hundred and fifty c.c. of blood can be obtained from the placenta and preserved with a special mixture some sixty days. Placental blood has excellent characteristics for transfusion. It has a high percentage of hemoglobin, an increased red cell count, sometimes up to 7,000,000, a high sugar content, and a potassium and calcium content of from one and one-half to two and one-half times that of the adult's blood. It coagulates rapidly, contains fibrinogen in large amounts, gonadotrophic material, and epinephrine-like substances. It has antibacterial and antitoxic agents which result in the well-known immunity to the infant. Its use needs further study, and where blood is hard to get, this source might be of much value.

To be mentioned only in passing is stored cadaver blood which is used in Russia where the technique of its employment was developed. This was started experimentally in 1928 in dogs and adapted to human beings in 1930.[33] The blood is taken six to eight hours after death sterilely from cadavers, tested bacteriologically and serologically for syphilis and grouped. It has been found that blood from the cadavers of people who died suddenly from heart failure or injury gives a blood which first seems to coagulate following which a fibronolysis occurs and the blood becomes liquid. It is claimed that there are fewer reactions from this blood, that it can be kept in the icebox for days, and transmitted in containers for hundreds of miles. Dr. Ottenberg stated that in New York he was unable to get the hospitals interested in it because of the æsthetic aspects. In stress of war times this source of blood might become of much value.

In reviewing our own transfusions in 1936 and 1937 in the light of some of the previously mentioned problems, I find, as no doubt many of you have, that we were not keeping adequate records of our transfusions in that we have no specific report as to what happened to the patient and his blood after transfusions of various types and with various donors. We are trying to remedy this with the use of a detailed transfusion sheet which is incorporated in the clinical history. (Table VI). The surgical service now performs our transfusions with very few exceptions. There were three hundred and fifty-

TABLE VI

ORDER FOR BLOOD TRANSFUSION

Date to be given.....Time.....A.M. Am't to be given.....c.c.
P.M.
Patient's Name.....No.....Room.....Age.....
Blood Group.....Kline.....Cross-matched....Yes....No....
Remarks.....
(Followed by saline) (Glucose) (etc.)
Donor's Name.....Address.....
Blood Group.....Kline.....Age.....
Remarks.....
Indication for Transfusion.....
(anemia, shock, hemorrhage)
.....
(blood dyscrasia, debility, etc.)
Number of times this donor used previously and results.....
.....
Ordered by Dr.....

RECORD OF TRANSFUSION

Date Given.....
Amount withdrawn.....c.c.....Vein used.....
Amount blood given....c.c.....Fresh....In icebox how long....
Site of injection.....
Fluids given before and after blood.....
Subsequent untoward reaction....Yes.....No.....
Interval after transfusion.....Duration.....Hrs.
Description of reaction.....
.....
Remarks.....
(result) (immunity) (cell count and hb. before and after)
Given by Dr.....

two transfusions given to one hundred and fifty-eight patients, of whom fifty-eight eventually died. Fantus also found that thirty-three per cent of the patients transfused at the Cook County Hospital died. He felt that transfusion was used too frequently in moribund cases.[31] Group IV as a universal donor was used eighty-eight times and I see no reason why we should not continue its cautious use where necessary.

A review of the diagnoses of the patients transfused gives an idea of the broad scope for the use of transfusion. The surgical indications (Table VII) were traumatic shock, hemorrhage and postoperative conditions

TABLE VII

Surgical	Living	Dead
Traumatic shock with or without hemorrhage	3	4
Laceration with severe hemorrhage	3	2
Postoperative secondary anemia	3	
Postoperative shock and hemorrhage	2	
Postoperative sepsis, peritonitis, etc.	5	4
Septic Conditions:		
Mastoiditis, subdural abscess		1
Burns, septic	4	
Osteomyelitis	6	
Metastatic abscess	1	
Empyema	5	
Septicemia		2
Mastitis	1	
Perinephritic abscess	1	
Gunshot wounds of abdomen	2	4
Gunshot wounds of chest		2

such as secondary anemia, exhaustion, and septic states of many kinds. Of special interest here is the use of transfusion in burns, especially in long standing septic burns of low healing power, in preparation for and following grafting. We have found a definite increase in the healing power and ability of grafts to take following transfusion. In the traumatic shock of severe crushing injuries to the chest and pelvis transfusion may be life saving. These patients sometimes are admitted to the hospital six to eight hours after their injury in very bad shape. In an effort to obtain immediate donors, I have contacted the companies and mine unions in an effort to have the men from the mines come in voluntarily for blood grouping so that when an accident occurs the group of the patient would be known and the donors sent along with him for immediate transfusion. So far it has not worked out very successfully.

In the obstetrical and gynecological conditions (Table VIII) I believe we have had

TABLE VIII

Obstetrical and Gynecological	Living	Dead
Placenta praevia, with sepsis	1	1
Placenta praevia, without sepsis	2	1
Premature separation	1	
Ectopic	1	
Postpartum sepsis	8	
Postpartum hemorrhage	7	
Septic abortion	7	
Uterine hemorrhage	5	
Pelvic inflammatory disease	3	
Ruptured uterus and peritonitis		1

rather unique results in postpartum sepsis and septic abortion in 1936 and 1937. During this time we transfused these patients early and often, as shown by the accompanying data relating to the day of transfusion after entrance. In one case at least transfusions were used prophylactically in a potential sepsis where intrauterine manipulation had been necessary. In 1937 sulfanilamide was also used in conjunction with transfusion. Whether these results were due entirely to transfusion or not, I cannot say. At least they are suggestive.

In children's diseases (Table IX) however, the apparent results are not so good. Take

TABLE IX

Pediatrics	Living	Dead
Gastrointestinal and nutritional:		
Complicated	10	7
Uncomplicated	8	7
Erysipelas	1	1
Septic and infectious:		
Mastoiditis		1
Pneumonia and malnutrition		1
Encephalitis and pyelitis		1
Purulent pericarditis		1
Sepsis following chickenpox	1	
Tuberculous meningitis		1
Tuberculosis of cecum	1	
Blood diseases:		
Henoch's purpura	1	
Hemorrhagic disease of newborn	1	
Acute leukemia		1

for instance intestinal and nutritional diseases with dehydration, both with and without complications. Checking up on the time of transfusion after entrance in both the living and dead cases, I find that the time of transfusion and frequency of transfusion apparently have no bearing on the outcome (Table X)

TABLE X

Day on which patient was transfused after entrance.

Hemorrhagic in Infants Living	Dead	Portpartum Sepsis
12		
9	6	2
12	13	4
7	7	6
2	13	4—6
23	2—9	2—6—7
1—4	8	2—4—6—7
22	8	1—4*
16	1—8	1
13	7	2—4
8—14	3—14	5—6
3	26	1—2—3—5
2	2—16	9—12
2	4	

*Prophylactic.

Twenty-two per cent of all cases transfused were infants two years or under.

Thirty-two per cent of all deaths were in this age group.

although from the clinical standpoint I know that many cases improve remarkably following blood transfusion. However, on looking over these cases, both living and dead, I find the lapse of time between entrance and transfusion is much longer than in the gynecological cases of sepsis. I have a feeling that earlier and more frequent transfusions in the diarrheas and malnutrition in infants would have given us better results and more patients saved. In other words, it may be that we have not met the indication here for early and frequent transfusion. Fantus emphasizes this in advising that premature infants get 10 to 20 c.c. of the mother's blood every other day while in the hospital. He also states that in some hospitals small infants entering the wards are given 10 to 20 c.c. of the mother's blood on entrance and this is repeated every ten days for its protective effect against acute infectious diseases while in the ward. Recent researches have suggested that hemorrhagic diseases of the newborn baby may be a deficiency disease associated with low prothrombin content of the blood,[34] possibly due to the deficiency vitamin K.[35] These factors are cleared up by transfused normal blood.

TABLE XI

Medicine	Living	Dead
Epistaxis due to lues, sinusitis, rheumatic fever, hypertension	4	
Typhoid fever, with hemorrhage	1	1
Typhoid fever, toxic	2	1
Anorexia nervosa	1	
Pyelitis and pyelonephritis	4	
Chronic glomerulonephritis anemia	1	1
Essential hematuria	1	
Toxemia of pregnancy with secondary anemia	3	
Duodenal ulcer with hemorrhage	3	
Hemorrhage from hemorrhoids	2	
Hemorrhage from tonsil ulcer	1	
Aplastic anemia	1	
Sprue and anemia	1	
Lobar pneumonia		1
Atrophic arthritis		1
Diabetes with gangrene and sepsis		1
Erysipelas	2	
Miscellaneous:		
Pancreatitis with ca. of ampula		1
Ethmoiditis with meningitis		1
Metastatic sarcoma		1

RESULTS FOUND IN EPISTAXIS

Considering our observations from the medical standpoint (Table XI) we find in epistaxis that the results of transfusions are oftentimes also specific, possibly because of the platelet, fibrinogen or prothrombin furnished by the blood of the donor. In typhoid fever, hemorrhage, toxemia, or exhaustion, may be the indication. In anorexia nervosa, blood transfusion is indicated, especially if there is a low protein content in the blood of the patient which in long standing cases may result in edema. In pyelitis and pyelonephritis of adults the indications of sepsis and secondary anemia are the same as in childhood. Several pregnant women with pyelitis have been carried to term with the aid of transfusions. In chronic nephritis we have a controversy. Some authors state that nephritis is a contraindication to transfusion, while others have advised it. In our two cases the indication was marked secondary anemia. In the edema of nephritis with low blood proteins blood is helpful. In both of our cases edema was present which seemed to lessen when transfusion was instituted. Essential hematuria with secondary anemia is a definite indication in that the hemorrhage from the kidney is sometimes stopped immediately. In toxemia of pregnancy with secondary anemia and low blood protein and edema, very excellent results are obtained. In chronic low grade aplastic anemia, the measure prolongs life. Our case has been kept at part time work for the last two years by the use of blood transfusions. Sometimes cases of pneumonia with severe sepsis and toxemia are benefitted by small blood transfusions. Coca and Bulova of New York studied immune transfusions in

pneumonia but the results apparently have not been satisfactory.[36] It might be noted that in these cases of hemorrhage with severe anemia where there is a chance of a recurrence, immediate transfusion is mandatory because of the fact that another hemorrhage, even slight, may immediately throw the patient into severe shock and an irreversible state which will cause death. This irreversible state is associated with anoxemia and edema of important organs based on the low blood protein, low blood osmotic pressure, low blood pressure, and low blood volume.[36]

CASE SHOWS GOOD REPORT

A good response following transfusion might be noted as follows: A colored patient with uterine hemorrhage was transfused three times with 500 c.c. of blood each time. The hemoglobin on entrance was 25.26 per cent with 1,520,000 red cells. After two transfusions the hemoglobin was 49.9 per cent with 2,800,000 red cells. The usual average increase in hemoglobin is 10 per cent and red cells five to six hundred thousand after 500 c.c. of blood is given. The following case might illustrate a poor result and the necessity of studying these cases in detail: A female, 20 years of age, started about the latter part of pregnancy with diarrhea and anemia. On entrance the hemoglobin was 38.4 per cent. There were 1,980,000 red blood cells and 3,500 white blood cells. After six transfusions the hemoglobin was 38.4 per cent and 1,610,000 red cells. Following this experience large doses of brewer's yeast and liver extract were given with a prompt response of the blood count and general condition of the patient. Naturally one could not expect results where the diagnosis is inadequate. Over enthusiasm for a procedure obscures keen thinking. It may be that this over enthusiasm was what caused the 71.7 per cent of poor results in the 1500 transfusions reported by Polayes. I can aptly conclude this section of my paper with a reiteration of some of the statements of our present president, Dr. C. W. Waddell, which he made before you in 1919; first, that transfusion "is a procedure that bids fair to be a really great addition to our therapeutic equipment"; also, "anyone who is conversant with the literature on transfusion appreciates that the last word has not been said." These words are as true now as then with the exception that his prediction has materialized and this procedure is now a really great addition to our therapeutic equipment. To keep it so and enhance its value it behooves the individual physician to study it carefully as the last word has still not been said. Human blood as a therapeutic agent cannot be further developed and studied as many of our biologicals are in the great drug firm laboratories, but must be carefully observed and perfected by the physicians themselves in their own practice. New indications will arise and old ones will disappear as we discover more of the fundamental causes of disease.

IMMUNE BLOOD

Another important use of human blood can be discussed under the heading of convalescent serum or immune blood in infectious diseases. This method of treatment is not as extensively used, of course, as blood transfusions but is growing in importance. From the historical standpoint we find that Home of Scotland two hundred years ago used injections of human blood in measles, while the recent development dates back to 1918 when Nicolle and Conseil in France, and Park and Zingher in this country published their observations. It was first used in poliomyelitis in 1910. In 1897 Weisbecker introduced convalescent serum in scarlet fever in Europe and Zingher in 1914 in this country.[38] However, it has not been until recently that it has been very extensively applied. In the last few years many large cities, Chicago, Milwaukee, Philadelphia, Providence, New York, Detroit, and Los Angeles have developed centers for processing immune serum. Its extensive use apparently has not spread very widely because of the difficulties involved.

Hyland has recently reviewed the English literature on reports of the use of convales-

cent serum or whole blood for the prophylaxis of measles in institutional contacts and out of 3,610 persons exposed 83.9 per cent were protected and 13.4 per cent developed a modified measles. Out of 2,334 home contacts, 67.7 per cent were protected and 28.5 per cent developed modified measles.[39] By the use of immune adult serum or adult whole blood out of 774 home contacts 37.1 per cent were protected and 37 per cent developed a modified measles. Hyland gives a simple technique for the preparation of serum which can be used in small towns and rural districts.[39] He advises widespread use of convalescent serum and immune adult serum. The use of convalescent serum in treatment is also of value apparently in measles as well as scarlet fever, especially if given in the early part of the disease. Although several authors have had poor results with convalescent serum and whole adult blood in poliomyelitis,[40] others have found its use satisfactory and worthwhile in the preparalytic stage. Recently, at the meeting of the American College of Physicians, Kolmer discussing the therapy of poliomyelitis stated that the present vaccines were dangerous and should not be used, that the present method of chemical prophylaxis of the nasal membrane has not proven satisfactory so far and recommended the use of immune serum or whole blood given intramuscularly or by transfusion. One author states that old paralytic cases should not be used as the titer of poliocidal substance is usually low. It is highest in abortive cases, and may be very high also in adult contacts and normal adults.[41] One indication for the use of the serum or plasma rather than whole blood is that one author has found that the complement necessary for resisting infection may be inactivated in the patient by introducing new red cells.[42] Whether this will be supported by further experience is questionable. Hess[40] in a recent review of convalescent serum therapy in pediatrics, states that in the 1936 season in Chicago 240 cases of poliomyelitis were treated, including many of the severe bulbar cases. He said they had negligible residual paralysis and many of the bulbar cases got well following serum therapy. He recommends in the absence of convalescent serum that blood transfusions from adults be given. Blackfan, et al[43A] in 1923 used convalescent serum in chickenpox for the first time with good results in protection. Of course, the use is indicated in wage earners and the debilitated children only. Hess[40] states that in mumps, whole blood or serum from convalescent patients is used for prophylaxis and treatment. In whooping cough convalescent serum or whole blood from immune adults if used in the early incubation period gives complete protection according to some authors. Given later it may have beneficial effect on bronchopneumonia. Hardgrove[40] has summarized the results in the treatment of scarlet fever with convalescent serum: 20 to 30 per cent of untreated cases had complications against 11 to 16.9 per cent for the treated. The rash quickly disappeared and the general condition rapidly improved following its use. Like other types of serum therapy, the earlier it is given the better are the results. Hyland[43] as well as Thalheimer recommend the use of scarlet fever convalescent serum in erysipelas and streptococcic infection as the scarlet fever serum seems to have a non-specific antibody capable of resisting other types of streptococcus than that causing scarlet fever.

DOSAGE

The dosage as used by various workers for the various diseases can be summarized as follows: In poliomyelitis for prophylaxis, 10 to 20 c.c. of adult whole blood intramuscularly has been advocated. For treatment several methods have been worked out. One hundred to two hundred c.c. of convalescent serum is given intravenously and repeated if no results are shown in twelve to twenty-four hours or in bulbar cases in six to twelve hours. Others advocate 100 to 200 c.c. transfusion from adults or convalescents or a combination of 20 to 30 c.c. convalescent serum intravenously, 20 to 50 c.c. convalescent serum intramuscularly, and a 100 to 200 c.c. transfusion.

In mumps for prophylaxis six to twelve c.c. of convalescent whole blood is given intramuscularly before the seventh day. For treatment 20 c.c. of convalescent serum intramuscularly prevents complications and decreases the severity of the disease if given early after the onset of the parotitis.

In whooping cough for prophylaxis three c.c. of convalescent serum intramuscularly is advocated. This seems quite a small dose. Ten c.c. of convalescent serum intramuscularly or 10 to 20 c.c. whole blood intramuscularly is given early for treatment.

In chickenpox, 10 to 20 c.c. of convalescent serum intramuscularly or 40 c.c. of normal adult pooled blood is advocated for prophylaxis.

DOSAGE FOR DIPHTHERIA

Four hundred to five hundred c.c. blood transfusions have been advocated in malignant diphtheria before the heart is affected. Antitoxin is given also.

Transfusions from immune donors if possible have also been advocated in undulant fever and tularemia.

In various malignant streptococcic infections such as cellulitis, septicemia, and erysipelas, 20 to 60 c.c. of scarlet fever immune serum has been given intravenously or intramuscularly once or repeated as many as seven times with good results.

In scarlet fever for prophylaxis 10 c.c. of convalescent serum is given intramuscularly to patients under ten years and 20 c.c. in patients over ten years. For treatment 20 c.c. of convalescent serum is given in the muscle in infants, 20 to 40 c.c. in children, and 40 to 60 c.c. in adults. All doses should be increased forty to fifty per cent and given intravenously in severe cases. Transfusions from immune donors are also used alone in the amount of 100 to 150 c.c. in infants, 300 c.c. in children, and 500 c.c. in adults.

In measles the prophylactic dosage has been noted as 2.5 to 10 c.c. intramuscularly of convalescent serum or 20 to 40 c.c. intramuscularly of normal adult serum or whole blood or four c.c. placental blood intramuscularly. For treatment five to twenty c.c. of convalescent serum has been given intravenously.

In an effort to determine the status of this therapy in West Virginia, 31 pediatricians were sent questionnaires regarding its use with the following results. Sixteen of the eighteen responses were of value in this study. Three did not use immune serum or adult whole blood in therapy at all. Six used both adult immune blood and convalescent serum with favorable results in five instances and questionable in one. Seven used whole blood with favorable results in five, questionable in two. This type of therapy among these men was used mostly in measles and poliomyelitis. An occasional physician used it in erysipelas, scarlet fever, mumps, chickenpox, whooping cough, and various infections. I have given whole adult blood as a prophylactic against measles with favorable results.

The following data furnished me by Dr. J. K. Cooper of Premier, West Virginia, illustrates the use and results obtained in a coal camp practice. He passively immunized against measles with whole adult blood fifteen children exposed in the home. They varied from two months to six years in age. Twelve were two years or under. Eight were given the blood on the first day of exposure, five on the second day, and two on the third day. Twenty c.c. was the usual dose. The parents were used as donors in all but two cases where brothers were used. Of the fifteen children only two failed to get protection or a modified light attack of the disease. He also used this method in four children exposed to scarlet fever with protection in two of them. While the number of cases is too few to be of statistical value, a widespread use of the procedure is indicated especially if we also consider the reports from the pediatricians of the state and a review of the literature.

SUMMARY

The importance of transfusion is shown by the past history and the present extensive use.

A review of the accidents, reactions, and number of cases of diseases transmitted by

transfusion calls for continued care in the selection of donors.

A review of the recent advances in transfusions shows the necessity for continued interest in its further development.

A review of 352 transfusions illustrates in a small way the extensive indications for its use.

A review of the literature suggests the importance and value of immune blood and immune serum as a therapeutic and prophylactic agent in the infectious diseases.

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ORGANIZED MEDICINE VS. QUACKERY*

By A. B. COLLINS, M. D.
Blacksville, West Virginia

UNDER the heading of quackery, I include quacks, patent medicines, nostrums, curealls, misleading and deceptive advertisements by radio, newspapers, and all printed or oral methods of treating diseases.

I believe that if the organized medical fraternity would make a more systematic and determined effort to offset the propaganda constantly being brought before the laity, that both the physician and the general public would be greatly benefitted.

The public is not sufficiently informed to judge the merits or demerits of the claims made by advertisers of patent medicine and quack doctors, and I feel that by a program of education designed to bring to it a better knowledge and understanding of what the organized medical profession has done and is doing for the benefit of humanity, a more sane attitude may be assumed by the public.

Let us get before the public some of the facts:

First. The great achievements and advancements made by medical science since its inception, by bringing out the outstanding personalities, outlining their personal achievements in such a way that it will be brought forcibly to their attention.

For instance, the increase of the length of the life span; the lowering of the infant mortality rate; the effect of immunizations, such as smallpox, diphtheria, typhoid fever, and to get the public to understand and realize that it is not patent medicines, quack doctors or rub doctors which have accomplished these great benefits to society. Inform the people that patent medicine advertisements are only a money making scheme for the manufacturers who know nothing about the physical conditions of those who take their medicines, but by propaganda they deceive them into buying their products, solely for the profit of the manufacturer. Deceptive and unscrupulous advertisements continually repeated are only propaganda to deceive people into filling the coffers of the advertisers, which will at

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the same time give a false security that will be disastrous to the physical being by procrastination, and which will carry them beyond the reach of the honest physician's aid.

Propaganda is a process of moulding opinion, by repeating over and over that which is sought to be instilled into the minds of the people. Propagandists go on the assumption that if you repeat a thing often enough, people will gradually come to the conclusion that it is true.

We must confess that there are many people who unfortunately do not have a great deal of information and whose reasoning ability is very limited. These are the ones that propagandists concentrate upon. I have noticed especially in radio advertising that the program connected with the advertisement is such as to attract the attention of those most gullible and most likely to be deceived into buying the product being advertised.

RADIO ADVERTISING

One may sit down by his radio any day or night and turn from program to program and hear any number from twenty to fifty different products being advertised, most of which we know are useless and a great many of which are harmful.

Physicians go into many homes and see there a multiplicity of patent medicines, which have been paid for by people not able to do so, and the physician leaves with an I. O. U. which will always be an I. O. U.

The sacrifices made and the hardships endured by the medical profession deserve better treatment, and I believe that if the public were better informed concerning these things, and could be made to see as they should, that the attitude of the public could be changed.

I hear chiropractics and not only chiropractics, but their secretaries and aides broadcasting their advertisements over the radio, advertising that the best health insurance you can have is to have the chiropractor look you over before diseased conditions arise, by having the spine corrected, and that after disease has developed the easiest road back to health is through the chiropractor.

Why should not the medical profession, by a series of programs, broadcast to the world its qualifications to treat disease and prevent disease, and hold high the banner of achievement which has not been surpassed by any branch of science and which has brought health, comfort and happiness by the alleviation of pain and suffering to millions throughout the world.

If the public were adequately informed we would then through our legislators be able to get remedial legislation from which not only the medical profession, but the whole world would benefit.

The restless mind of man, ever seeking a reason to account for the marvels presented to his senses, adopts one theory after another, and the rejected explanations encumber the memory of nations as myths, the significance of which has been forgotten.

The continual strife with the elements, the dreadful toils and dangers of man's life, the inclemency of nature, were all attributed to a preverse divinity or demon, who delighted to inflict pain and misery upon brief-lived mortals. Such a divinity needed worship and sacrifices to propitate him. Humanity began to fear the devil before they imagined the god. The "earthworms" created the gods of goodness to protect themselves against the spirit of evil which they had incarnated.

SUPERSTITION

With fear began superstition, which is based upon fear and ignorance. The desire to know the mysterious future has given rise to a great deal of the world's store of credulity in the supernatural. The ancient philosopher who desired to divine the future by means of geometrical figures, the pretty maiden who counts the petals of the daisy or dandelion to learn whether her lover will be constant, and the business man who allows the clairvoyant to pass on the lines of his hand, are the ordinary examples in life of the vain endeavor to raise the curtain that hides what is to be. Living beings fear death—a rational

fear. In order to prolong life, the body is to be kept healthy, illnesses are to be avoided, and, if diseases do afflict an individual, the sickness is to be cured. This is all rational. But illnesses are almost inevitable in man's life, and diseases are not always cured or curable.

Instead of combatting disease logically, men of all classes drew upon their imagination and hashed up various absurd means and methods of treatment, and coeval with the birth of superstition was the birth of magic. The charlatan who could unscrupulously play upon the feelings of his ignorant audience had quite a mighty following in every locality where human beings suffered and hoped.

Quacks in medicine flourish through an inherent weakness in human nature. The sick are petulent and prone to delusions. Like a drowning man, they are prepared to seize upon anything that may relieve their distress or save their lives. They call for ease and comfort and often find the charlatan most sympathetic.

AN ANCIENT QUACK

An ancient quack, Quintus Serenus Samonicus (211-271 A. D.) who lived in Rome in the time of Caracalla, was very prominent and wrote an herbal book in poetry which was popular until the early part of the nineteenth century. "The method of medical study, just like that of the members of the body, is arranged in a series, which most sadly lacks melodiousness, and the light poetic fantasy which gives verse its charms." It also shows his methods. He appeals to Phoebus, the Sun God, to teach him so that he too can banish disease and sickness with a nod, or at least with an herbal concoction. Serenus did a great business with a cabalistic charm that consisted of the word "Abracadabra." This word has been since used by an endless line of quacks for curing purposes. Serenus directed his patients to write it on parchment and wrap it around their necks for nine days and then throw it backward over the left shoulder into an eastward flowing stream. That was said to be an infallible cure for most diseases. In comparatively recent times, an English doctor claimed to have cured over two hundred fever and ague cases by the use of that charmed word of Serenus.

MEANING OF CURE

To cure really means to care for and correct. Disease means distress or not feeling at ease. Doctors often forget the meanings of these often used terms and the result is that they think more in terms of medicines and surgery than in curing the mental states of their patients. They leave that field open for crowds of imposters who have a better realization of the fact that nature is the great physician who will heal our bodies when we enable her to do so. The sick need care and they look for aid to all who give them care. The charlatan plays on the human motive and frequently succeeds far more than the most skillful doctor. He asserts with the fullest confidence that he will care for and cure the sick. That gains him complete confidence and permits him to dominate his patients. Since the most remote times, quacks have preyed upon mankind and have given much trouble to the qualified doctors of all ages.

Superstition grows with the ages and the public demands spiritistic and other mystical healers. Every district has its mediums for that purpose. Some recent panderers to this public faith in the mysterious have professed to heal by philosophical and psychological means. The lectures of M. Coue have developed a multitude of psychoanalysts and other quacks among the intelligentsia and ignorant Philistines who profess, for a fee, to cure all manner of neuroses causing sickness, pain and disease.

There was a general belief current in the Middle Ages that the cries of animals each had a significance. One must, however, be a scholar of Latin in order to understand what the animals were saying.

As a method of curing himself, man has attempted to rid himself of his disease by transferring it to the stranger or the foe. In Germany a plaster from a sore may be left

at a cross-way to transfer the disease to a passer-by. Sometimes in passing off the sickness to a human being, they attempted to give it to some animals, and thus rid themselves of the affection. A child that was suffering from scarlet fever was treated by taking some of the hair of the patient and giving it, concealed in the food, to an ass, which was to contract the fever and thus cure that patient. A similar procedure was in vogue for the treatment of measles; the hair from the nape of the neck of the child was given to a dog. A patient that had rickets was passed over the back and under the belly of a donkey nine times, uttering no word but the successive numbers. A person with convulsions or fits was to try this simple remedy. Every morning while fasting the subject was to chew a piece of grass and give it to a jay to eat; when the bird died, the cure ensued.

THE KING'S TOUCH

The kings evil or scrofula was supposed to be curable by the touch of the ruler of England. Dr. Samuel Johnson, in his childhood days, was taken by his father to Queen Anne, in order to cure the child of the malady which affected him. The first king to introduce the king's touch into England was James I.

A little superstition seems to be a universal trait, but it is the excess of it which has caused so much harm and misery.

The establishment of the Roman Church in England did not cause the old Anglo-Saxons to abandon their ancient rites and ceremonies. The inhabitants still clung to the mysterious lore of the druids, and were only able to attach themselves fully by retaining quite a number of the heathen superstitions. Long after the coming of the Catholic missionaries to the British Isles, there throve in Merrie England hundreds of magicians who were feared even more than the holy fathers. The ignorant person ever loves to compromise. He is never certain which god is the true god, and in order not to take any chances, he sacrifices to more than one divinity, lest he be left in the lurch. Palmists, fortune tellers, necromancers, magicians, clairvoyants, are always secure of a very comfortable living, if they but settle in those centers where ignorance abounds. For, indeed, they seem omnipotent to the credulous mind. They can predict the future; they can prescribe for the patient when the learned physician has given up hope; they can sell love philters; they can cast spells upon our enemies; they can give us an amulet which we can wear and be protected forever against fearful maladies; they can grant good luck, and tell us how to avoid dangers and pitfalls.

Above all, let us repeat, they can give us an amulet, or charm, to wear which will make us fearless of disease.

The selling of amulets by physicians is a very lucrative business even in the present day. People are afraid more often of an imaginary possible misfortune than they are of the present state of infelicity. I shall mention several charms or amulets that were prevalent in the various countries of the Orient and Occident. Among the Chinese, iron nails which have been used in sealing up a coffin are considered quite efficacious in keeping away evil influences. They are carried in the pocket or are braided into the queue. Sometimes such a nail is beat out into a long rod and is encased in silver. A large ring is then made of it to be worn on the ankles or wrist of a boy until he is seventeen years old. Such a ring is often prepared for the use of a boy if he is an only son. Daughters wear such wristlets or anklets only a few years, or for even a shorter time.

STRENGTH FOR THE STOMACH

Galen mentions an amulet belonging to an Egyptian king, who is said to have lived 630 B. C. It was composed of a green jasper cut in the form of a dragon, and surrounded with rays. This was applied to strengthen the stomach and organs of digestion.

The Hebrews have quite a variety of amulets or charms, each of which has a specific virtue. In the Middle Ages, the quack necromancers did a thriving business among the Jews that had settled in Spain. Maimonides, the great physician, wrote vigorously

against them. "Believe not the magician or the necromancer; they do but blaspheme the name of God."

Still many of the old superstitions have remained with the Jews. When a Gentile physician goes into the lying-in room of the Hebrew woman he will notice placards on all the four walls, written in the ancient Biblical tongue. These papers invoke the aid of the great angels for protection against the evil spirits that may attack the newborn infant or the mother.

REPULSIVE CHARMS

Sometimes the charms worn were not so harmless, and had no sentimentality or mystery to grant them fascinating potence. Very frequently horrifying and repulsive things were carried about to ward off illness. In Egypt, the finger of a Christian or Jew, cut off a corpse and dried, is suspended from the neck and is reputed to have the powers of an amulet. In Flanders, a sick person imprisons a spider between shells and wears it around his neck.

These are the sources of quackery and extortion as Carlyle pointed out long ago, and before that Massinger had put into one of his plays these illuminating words:

"Away you imposters. Quack-salving, cheating mountebanks. Your skill is to make sound men sick, and sick men to kill."

And Crabbe, speaking of their rash avariciousness said that they well knew their tinctures, syrups, lotions, drops, and pills are used to tempt the sick to spend money by means of lying publicity.

The mind of the bluffer and quack works in opposite directions. It is perverted and flounders in degenerative activities. It seizes novel ideas and turns them to adverse account. Radium therapy is a new idea, and radium ampules or seeds are the latest devices for applying it in certain cases. Quacks take this up and develop radium institutes. Learning from the text-books that radiation is given off from these tiny seeds, and as these induce fibrosis, but not necrosis, there is no longer any "radium reaction" to be feared, for no toxic products are unloaded into the blood stream. Neither do these seeds have to be left permanently in the tissues, for attached to each is a slender thread which serves to mark the place where it was implanted, and when the radon contained in it has done its work, and decayed, the spent seed is easily and quickly drawn out, leaving no trace of its presence other than the destruction of the disease in the area where it was implanted.

These sound statements are announced to patients who are led to believe the quack is a master of radium therapy. Fees are collected and while money is paid the treatment continues. Quacks' promises are traced on sand, and their works cause misery and expense.

MUSICAL THERAPY

The use of cabalistic words as remedies for disease is as effective as a system of musical therapy practiced by some present day humbugs. One of these advertises that with a well tuned piano he can produce vibrations corresponding to those of the chemical elements. "Take for example, mercury and chlorine," says he, "and when I strike the piano keys corresponding to those chemicals, D on the second octave and E on the seventh octave—you will notice that a sensitive person will respond with a noticeable flow of saliva in the mouth. Should I continue to sound the keys a little longer, a bowel action will be started."

From that he inferred that stomach ache, indigestion, nervous disorders, soft corns, and a great many common complaints can be cured by striking the proper keys on the piano.

It must have been frauds of that character which caused Crabbe to write:

"No class escapes them — from the poor man's pay
The nostrum takes no trifling part away;
Time, too, with cash is wasted; 'tis the fate of real helpers,
To be called too late;
They find the sick, their time and patience gone,
And death, with tenfold terrors, hurrying on."

The word "quack" is of Dutch origin and signifies a frivolous and vain boaster, who pretends to possess knowledge and skill in any profession without solid qualifications.

E. T. Craig of London, in 1872, widely advertised a startling discovery of a way of preventing premature deaths by restoring the fluidity of the blood. He stated that the idea was conceived by him while taking the baths in Baden-Baden. Carbonic acid, he thought, caused heart disease, fatigue, lassitude, headache, and many other troubles and shortened life. Why not get an assortment of crystals that would extract the carbonic acid from the blood by exosmosis or absorption? He set to work in mixing up crystals and securing the secret of promoting a longer lease of life. He found many willing to pay him for such a secret and as long as he lived secured a fine income from it. Subsequently others by means of large advertising campaigns have built up extensive and very profitable patent medicine businesses in the so-called fruit salts.

PREHISTORIC CHARLATANISM

Medical charlatanism is of the greatest antiquity. Even in prehistoric times when the gods dispensed cures upon the faithful, there were men and women who set up rival remedies which they sold for their own profit. In Celtic times in Europe, the druids and their wives practiced medicine. The druids cured diseases by magical incantations and the druidesses prophesied, or cured by herbs and charms.

In the seventeenth century, and even before, the princes of the mountebank physicians traveled through Europe in great state with many assistants. Some had as many as twenty helpers. Their practice was to follow the village fairs and give lectures to lure patients with fervent promises of cures for all ills. They took side shows, educated fleas, dancing girls, Punch and Judy entertainers, singers, and others with them. The King of England licensed George Movetto, an Italian quack, in 1665, to practice medicine in public places in the British Kingdom. The parliamentary papers relating to that license are interesting. They state that: "In consideration of his skill in medicines and surgery, a license is granted to George Movetto to practice in any part of the King's dominions, and to expose his medicines for sale publicly by erecting a stage in the market place, or in any other mode which he deems convenient, without molestation to himself or servant."

QUACKS LICENSED

Many other quacks were similarly licensed in England and European countries to cheer the masses by their tricks, music, and buffoonery, and to take their money. Here we find the practice of medicine treated by the state as a purely commercial art and a common means for making money. Such licenses stimulated storekeepers, farmers and innumerable idlers to enroll into large corps of medical practitioners and to infest the highways, towns, cities and taverns. They could be seen in greater numbers than any other tradesmen, because they needed no training to begin business. Some of these men and women attained broad notoriety and their nostrums were advertised throughout Europe. Nothing could be more foolish than their cures. The British government was induced by Joanna Stevens to purchase her specific remedy for stone in the bladder for $10,000. Mrs. Mapp made much more from specializing in bone setting and James Graham, in London, received $500 per night from persons who slept on one of his celestial beds so as to secure an abundant and beautiful progeny.

America has always been a field of gold for medical quacks. Dr. Douglas of Boston, writing in 1720, said: "You complain of the practice of physicians being undervalued in New York. We are not much better in that respect. Boston abounds with practitioners, although there is no other graduate than myself. There are fourteen apothecary shops in Boston and all our practitioners dispense their own medicines."

In the early days, any man or woman could practice medicine and multitudes availed themselves of the opportunities. The history of quackery in America affords much amusing

reading. It was a great industry and for many years American proprietary medicines and nostrums of charlatanism and the wide advertising of the quacks has made the people credulous and open to believe anything in the way of cures. Today they are willing as ever to participate in quackery as may be seen by the way faith and other healers are received, even in intelligent circles.

THE THERIAC

One of the most ancient cures, and one that appears to have been adopted in all times as a universal remedy, is one that since Galen's era has been called the theriac. Claude Benard, the distinguished French physician, related that in his youth, when he was an apprentice to a druggist in a small French town, the greatest business of the store was done in theriac. He was anxious to learn its composition. He discovered that it was composed of all the spoiled and stale medicines, a hodgepodge of the refuse of the store. No one knew what it contained. Yet crowds of customers bought it and reported that there was nothing like it. Many of the old people declared that they felt young and active when they took it regularly, and tired and languid when they went without it. The nervous people thought it steadied their nerves, the dyspeptics declared it aided digestion, and the asthmatics said it enabled them to pass the winters without distress.

Bishop Berley's tar water, which once played a great rôle in medicine, was the cause of the introduction of medicinal waters. Tar water was sold in enormous quantities in Europe and America as a cure for everything that the ancient theriac was good for, and that was every human ailment.

Sarsaparilla supplanted tar water in America and was boomed as a cureall for many years. It is still a wonder worker in many remote places and has many friends.

Rattlesnake oil is another popular favorite. The advocates of this American remedy teach that most diseases are caused by tape and other worms in the digestive organs. Therefore, by using like to cure like, every sickness can be overcome. The snake oil would certainly play havoc with the worms and drive them helter-skelter from the body. Many gallons of the oil are still annually marketed.

Mesmer was one of the arch charlatans of modern times. He claimed that electricity, used in the form of magnetism, is the natural remedy for disease. A system was developed whereby he claimed magnetically to eradicate disease by passing a charge from his own body over that of his patient. Thousands of wealthy patients from all over Europe visited Mesmer's office and paid him high fees. They declared that he cured them of all kinds of ailments. His success was so great that he formed a school, and after his death his pupils formed a society, which has now developed into innumerable spiritualistic clubs, healing societies and churches. Scientific investigations of Mesmer's work showed that he was nothing but a cruel, money making rascal, although a qualified physician and graduate of the Vienna University.

PERKINS' TRACTORS

Dr. Elisha Perkins emulated Mesmer in capitalizing medicine. He was the son of a reputable physician and a graduate of the Yale medical school. Yet he adopted charlatanism for the money making reasons. His tractors were designed to extract the electric currents stored in the muscles and organs of the body. Mesmer proposed to recharge the body with magnetic forces, while Perkins undertook to abstract the normal electric charges. These great quacks plied their profitable business at a time when electrical discoveries were being made at an astonishing rate.

Perkin's metallic tractors were merely little rollers made of two dissimilar metals which were rolled over any part of the body where pain indicated there was an inflammation or diseased condition. He supposed that the metals would extract currents from the affected parts by induction.

Hypnotism succeeded mesmerism, for a brief day, and at one time, was very fashionable in France. Eminent physicians like Drs.

Brown-Sequard, Charcot, Luys and Bernheim were induced to believe that there were hidden virtues in hypnotism. But they were eventually surprised when the *Journal of the British Medical Association* demonstrated that hypnotism is as clearly a fraud as clairvoyance and crystal gazing.

Mechanical cures were the next to attain popularity. From magnetism to electricity and hypnotism, it was an easy stop to mechanism. When disclosures weakened the ideas of the masses about the dominance of mind over matter, which has been taught by Mesmer and the hypnotists, and mechanical developments of great importance were seen on every hand, it was easy for venders of mechanical cures to market large numbers of their wares. Perkins had paved the way, and America and Europe soon become flooded with chest protectors, rubber plasters, magnetic and electric plates, belts, and rings, colored light rays, magic shoes, arch supports, electric batteries, and also electric and magnetic charging machines.

MANUAL MANIPULATION

Another short step led quacks from the use of mechanical cures to those of manual manipulation. Dr. Andrew Still of Kansas City was the founder of a school which has had many followers. He stated that one day while driving a plowing team he suffered from a headache. The reins caught his head and jerked it. He then found his headache gone. That started him thinking and he concluded that the headache was caused by pressure on some part of the spinal column. He was shortly afterwards called to see a young woman suffering from nervous prostration. He lifted her head and stretched her neck and she recovered. Could any other proof of his theory of the spine be wanted? He founded a school to teach that idea which he called osteopathy or diseased or suffering bones. The *British Medical Journal* commenting on the fashions in osteopathy and chiropractic in America, said:

"It appears to observers at a distance that osteopathy and chiropractic are little more than terminological adaptions of bone setting, with the site of operations cleverly transferred from the ankle or knee, where results, if any, can at least be seen, to the backbone where they cannot."

Like the bone setters of antiquity, any changes they produce in their patients are due to reactions in the mind and not in the skeleton.

CHIROPRACTIC TREATMENT

Manipulation cures have recently been popular. In a bill prepared for the Legislature of New Jersey, to license chiropractic, the following description of that form of treatment was given:

"The term chiropractic, when used in this act, shall be construed to mean, and be the name given to the study and application of a universal science of the cause of disease, and the art of permitting the restoration of the triune relationship between all attributes necessary to normal composite forms, to harmonious quantities and qualities, by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other by hand, thus correcting all subluxations of the articulation of the spinal column, for the purpose of permitting the recreation of normal cyclic currents through nerves that were formerly not permitted to be transmitted through impingement, but have now assumed their normal size and capacity for conduction as they emanate through intervertebral foramina—the expressions of which they were formerly excessive or partially lacking—named disease."

This is an up-to-date, pseudoscientific statement of old Dr. Still's subluxation idea. The New Jersey politicians considered it a lot of foolish twaddle, lacking even the elements of sense. But there are numerous schools teaching the system to students, and many men and women practice it in competition with well-trained physicians.

"The practice of chiropractic consists of the adjustment by the hands of the movable segments of the spinal column to normal positions for the purpose of releasing the prisoned

impulse." That is an understandable statement of the system. But what a multitude of problems are involved in the last words—"the prisoned impulse."

The American Medical Association has taken many steps to suppress quackery and has shown that one of the greatest American frauds is the selling of patent medicines. These are concoctions which are given fanciful names and then trademarked. It is on account of the trademark being registered in the patent office, that the nostrums are called patented medicines. They have no other significence. But the public has been led to believe otherwise. The American Medical Association has published a large number of disclosures of these frauds covering cancer, consumption, drink and drug habit cures, cough, diabetes, gallstones, headache, kidney, rheumatism, seasickness, and many other remedies besides mechanical appliances, medical institute, mineral water, men and women specialists, cosmetic, deafness, indigestion and similar fakes. These and many other impostures are still with us, while new ones are constantly being devised.

A. M. A. INVESTIGATES

The American Medical Association has an active investigation department which aims to give publicity to infringements of professional ethics. It publishes pamphlets under therapeutic groupings, exposing quacks and their nostrums and methods. The various "consumption cures" form one pamphlet; the "cancer cures" another; the "deafness cures" a third; the "epilepsy cures" a fourth; the "female weakness cures" the fifth, and so on. All the material in these pamphlets is written for the layman and with the layman's needs in view. Practically every layman that writes to the propaganda department, and thousands write yearly, receives a complimentary copy of at least one of these pamphlets. Suppose, for instance, that a woman writes asking for information about "Lydia Pinkham's Vegetable Compound." A letter is written to her stating that she will find full information about this nostrum in the pamphlet "Female Weakness Cures" a complimentary copy of which is being sent by separate mail. Should a young man write regarding some venereal quack, he gets a letter warning him of the dangers of trifling with fakers of this type and telling him that a copy of the pamphlet "Men's Specialists" is being sent to him without charge. This pamphlet describes in detail the working methods of scores of quacks.

INFORMING THE PUBLIC

The pamphlets issued by the Bureau of Investigation not only contain information about quacks and "patent medicines" but they also give the public facts regarding the American Medical Association. On the inside front cover of every one of the pamphlets there is given, in the form of "Answers of Questions" information regarding the American Medical Association and what it is doing.

In another of its departments are loose pages from unbound copies of the two volumes of "Nostrums and Quackery", and the two volumes of "The Propaganda for Reform." These pages are sent out to laymen or physicians to answer letters of inquiry. In still another one of its departments there are kept the lantern slides that have been prepared by the Bureau of Investigation. These are sold or loaned to physicians, health officers, and teachers who wish to illustrate addresses or informal talks they may want to give on the nostrum evil and quackery.

In addition to the material already mentioned, there are filed in the office a list of physicians who have been addicted to the testimonial habit, a list of the advertisements of proprietary remedies appearing in the medical journals of the United States, a list of those who write uncritical articles for low-grade medical journals, and a geographic index of various nostrum concerns and quacks arranged alphabetically by states and cities.

The propaganda department was for years the only point of contact between the American Medical Association and the public. When the work first started, it was unusual for the Association to receive one inquiry a month from a layman; it now receives

hundreds each week. The primary object of the Bureau of Investigation is the prevention of medical fraud on the public. It has been a clearing house for information on the subjects with which it deals. Federal departments, editors of magazines and newspapers, health officials in various parts of the world, advertising agencies, teachers and professors in schools and colleges all refer inquiries to the Bureau of Investigation for information on medical frauds of all kinds.

The physician is apt to underestimate the extent to which the Bureau of Investigation has been able to bring its educational work to the attention, not only of the general public, but particularly to that most important part of the public, the school and college students.

The information that the bureau collects is obtained by original investigations made by the department, supplemented, when necessary, by analytic work done in the chemical laboratory of the Association and from data received from state and municipal boards of health, government reports, information published in technical and lay journals, domestic and foreign, and reports of special commissions, such as the Select Committee on Patent Medicines of Great Britain, and the Royal Commission on Secret Drugs, Cures, and Foods of Australia.

FREE SERVICES

Physicians by the very nature of their calling must be altruists. They must be generous in giving all the help they can to the sick, and the feeble, and the poor. There can be no "payment with order" or "cash on delivery" in their business. But surely they desire public recognition of the many free services they give to the people and to the nation.

Pasteur labored hard all through his life without a single thought of financial reward, notwithstanding the fact that many of his discoveries, if they had been taken in hand for financial exploitation, would have amassed great riches.

Lister, while working in London, discovered the antiseptic value of carbolic acid, and thereafter found a rapid development of antiseptic surgery. Think also of the importance and the value of the discovery of anesthetics by Long and Morton in 1840. These also were free gifts to the people. Medical records show an enormous number of discoveries by medical workers that have been dedicated to the public and which have done immense good.

SHUN QUACKERY

One-third of the whole practice of the organized medical profession is done without remuneration. Doctors amid the pinchings of poverty, have refused to embark in a scheme which would have given them wealth had they chosen it in the halls of quackery. When will the world do justice to such self-denying philanthropy? The number of destitute widows and orphans of medical men became so great that several years ago an Association was formed to secure them from destitution. No discoveries of value have resulted from charlatanism. The whole history of quackery is the history of men who have gained notoriety by their frauds and with their riches have sunk into oblivion. Humanity owes them nothing but abhorrent recollections of vile deceptions.

In my judgment the best way to attack this problem is by an educational program through the schools; first educating the teachers by requiring them to take a course to be outlined by the local, state and the American Medical Association. Through the teachers, the Parent-Teachers' Association will be educated and instructed to put on plays and programs built around prominent men and discoveries. Perhaps plays and skits may be had from the American Medical Association, if not, I think they would endeavor to supply them. If they could not supply them, by reading the histories and biographies, local people, by supplying the various characters, could work out a very satisfactory play or program, always emphasizing the importance that the physician has played in the advancement of civilization,

and for suffering humanity, and keeping constantly before them the fact that all worthwhile contributions to medical science have come through the conscientious efforts of the organized medical profession, and that quackery in all its hideousness has only retarded and never aided progress.

AUTHOR'S NOTE: I am indebted to "The Physicians Through The Ages," in two volumes for the historical data and some of the articles I have incorporated into this paper.

HEAD INJURIES*

By W. P. SAMMONS, M. D., F. A. C. S.
Wheeling, West Virginia

It would be ideal if all head injuries could be placed in the hands of the specialist. Unfortunately, a very high percentage of skull fractures are occurring in localities devoid of specialists. Even more unfortunate, the majority of the fatal cases die within the first 24 hours. The general physicians and surgeons residing in every village of our country are receiving their quota of skull fractures, just as are the surgeons and specialists in large medical centers.

Up until 1921, fracture of the skull, with severe injury to the nervous system, was fatal in 30 to 40 per cent of the patients. A survey of the methods of treatment prior to this period indicates an average mortality of around 28 per cent in the best equipped hospitals in the country.

As late as 1929, the mortality reported by Wortes and Kennedy in 1000 cases treated in Bellevue Hospital, N. Y., proved to be 37.8 per cent, whereas the survey of Mock, Morrow and Shannon, comprising 3278 cases (1934) collected from private patients and the large hospital services throughout the country, showed a mortality roughly between 26 and 40.6 per cent. Their mortality figures, representing a wide cross section of the country, correspond closely to those existing 20 to 30 years ago.

In contrast to these figures, a convincing number of cases (over 1000) have been treated with the consideration of cerebral hydrodynamics, consisting of repeated spinal puncture, dehydrating measures and restriction of fluid intake. The mortality in this series has remained consistently below 20 per cent.

In Temple Fay's series of 700 cases, during the last 15 years, an average mortality of 14.5 per cent was obtained by methods of treatment known as "dehydration." During the last two years, Fay, Mock, Genkins, Delaney and others have shown a mortality that ranged between nine and eleven and one-half per cent.

It is obvious that the profession is met with a definite challenge to justify the current discrepancy between a carefully planned and regulated method of treatment, which gives a mortality around 11 per cent and the existence of 25 per cent average mortality, based upon Mock's survey of 1934.

With the advent of the "machine age" and rapidly moving forces, combined with the fact that man has surrounded himself by hard unyielding materials in his modern civilization, the number of head injuries increases daily and the totals for our nation become appalling.

Swift reports 112,000 cases of fracture of the skull annually in the United States alone. Major G. F. Lull of the U. S. Army reports that "trauma received in automobile and motorcycle accidents leads all others as cause of death in the army." The National Survey Council reports in 1932, that 33,000 individuals met accident deaths by motor vehicles alone! And the War Department records show that the "U. S. Expeditionary Forces

*Read before the Section on Surgery, West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

in the World War lost 50,385 killed in action or died of wounds during the entire war."

The Surgeon General's office indicates that "in 1929, 103,942 individuals died in the United States from violent causes." If this represents only 25 per cent of those who received injuries, but recovered, it suggests the staggering figure of approximately 400,000 individuals in this country alone, subjected to severe injuries which require careful treatment. If only 10 per cent of this group could be saved by any demonstrable method of treatment, it would amount to approximately 10,000 lives annually. If such a reduction in mortality were possible in malignancy, the medical profession and the world would acclaim the method of treatment that could yield such results. However, cerebral trauma has been surrounded so long with the so-called "mystery of the brain" and the false and fatalistic attitude that such cases are usually hopeless, that the profession and the public accept this relentless annihilation of a large percentage of the population without efforts to establish logical and comprehensive methods of correction.

DAMAGE TO BRAIN IMPORTANT

Most surgeons agree that a given head injury without an x-ray or other evidence of skull fracture may require just as close observation, just as painstaking management as a proven skull fracture. The damage to the brain is far more important than the presence or absence of a fracture of the skull. The injury inside the skull determines the prognosis and treatment.

Two considerations are necessary in every head injury, namely:

1. Is there a fracture of the skull, and if so, is it linear or depressed; is it simple or compound, and where is it located?

2. Is there cerebral damage, and if so, is it a simple contusion with a varying amount of edema; is it in the nature of multiple petechial hemorrhages (often called concussion); is it a laceration of some of the vessels below the dura, with subdural hemorrhage; is it in the nature of bleeding into the subarachnoid space; is it a laceration and hemorrhage of the cortex or medulla, and to what extent? In any of the above conditions, are edema and hemorrhage increasing the intracranial pressure?

The whole problem of treatment depends upon as nearly correct an answer as possible to these pathologic problems presented in every case of head injury. The greatest consideration must be given to the damage occurring to the intracranial contents — the brain and its vessels—but the location and type of fracture in the skull must not be neglected.

LINEAR FRACTURES

The majority of linear skull fractures are in themselves, of little importance. However, when the x-ray shows that the linear fracture traverses a frontal sinus or extends into the ethmoid or mastoid region, the surgeon must be alert for possible infection, with resulting meningitis. The majority of slightly depressed skull fractures, or fractures which involve only the inner plate with a portion of the inner plate broken off, or puncturing the brain, are of extreme importance. It is impossible to determine by palpation, especially in the presence of a marked hematoma, whether or not a depressed fracture is present. The x-ray is the only means of determining this condition.

Numerous small petechial hemorrhages, accompanied with marked edema, may give almost the same picture as a laceration in the cortex with hemorrhage. If the small hemorrhage or edema occurs in or near the medullary centers, death may ensue just as surely and just as quickly as when there is a laceration and severe hemorrhage in the same region. The latter is practically always fatal, the former, by proper treatment, may not prove fatal. The signs and symptoms from a simple concussion with edema may simulate the signs and symptoms of a severe laceration with hemorrhage, but in the former, the signs and symptoms shortly recede, whereas in the latter they persist and usually become more pronounced. The clinical picture in head

injuries changes so rapidly that only the closest observation aids us to make our diagnosis in time to help the patient.

SIGNS AND SYMPTOMS

Shock is present in the majority of head injury cases and especially so if a skull fracture is present. Shock, in our opinion, is one of the most constant phenomena in head injuries. We want to call your attention that cerebral shock is often grafted on general shock.

In the ordinary picture of shock, there is pallor; cold, clammy skin; subnormal temperature; a weak, thready pulse; shallow and often rapid respiration; low blood pressure, and frequently syncope. Where there has been a brain injury, depending upon the amount of damage, this picture is magnified by the early signs and symptoms accompanying the cerebral injury. Instead of a short period of syncope, there may be a long period of unconsciousness. Instead of the pulse being weak and thready, it may be very slow and rather of full volume. Instead of the respirations being shallow and rapid, they may be slowed and even stertorous, and in extreme cases, may be of the Cheyne-Stokes type. Instead of the blood pressure being lowered, it may be high. It is extremely difficult to differentiate between the usual picture of shock which accompanies all severe injuries and this picture of cerebral shock, which may be modified in so many different forms by the extent and the location of the brain injury.

Disturbed consciousness was present in 88 per cent of Mock's 2500 cases. It varied from a short period of dazed or semi-conscious condition to marked unconsciousness or coma. Unconsciousness was recorded in 33 per cent of his series. Prolonged unconsciousness may leave a deleterious aftermath. However, we have observed unconsciousness for two weeks and longer, without brain complications. Marked restlessness, delirium, or persistent coma are signs indicating marked brain damage or markedly increased intracranial pressure.

The pulse rate varies. In the presence of general shock, the pulse is weak and rapid, as previously stated; with the development of cerebral shock, it becomes slow and full. However, if the medullary centers are involved, or if hemorrhage or edema compress the medulla, the pulse may become rapid and usually has a full volume.

In the majority of cases, the pulse remains between 60 and 90, but when intracranial pressure comes on gradually, the pulse rate may be as low as 40. In all cases other than those of direct medullary injury, the pulse slows. The slow pulse rate is important, and a warning sign of increased intracranial pressure, which should be relieved before the medulla becomes compressed, with the pulse changing to a rapid rate. This period of slowed pulse is often overlooked, due to the fact that it is taken carelessly and infrequently.

The respiratory rate behaves similarly to the pulse rate. If there is immediate medullary damage, the respirations are usually rapid, and soon become the Cheyne-Stokes variety. If there is an epidural or subdural hemorrhage, the respirations are usually slowed and soon become stertorous. Later, where medullary compression occurs, the respiratory rate may again become rapid. In the majority of cases the respiratory rate is not far from normal. The period of slowing pulse and respiration usually precedes rapid pulse and respiration, indicative of medullary compression. The picture changes so rapidly that, unless the pulse and respiration are counted at least at two hour intervals, this period of slowed pulse and respiration may be missed.

BLOOD PRESSURE

The blood pressure is difficult to interpret in head injuries. In the presence of shock, it may be low. If there has been a severe brain injury, even in the presence of general shock, the blood pressure may be high, as stated above. A "jumpy" blood pressure indicates increased medullary compression.

We agree with Fay that pulse pressure is the outstanding index as to when cerebral cir-

culation is becoming embarrassed. The difference between diastolic and systolic gives us pulse pressure. As pulse pressure approaches 50 and extends to 60 it indicates an anæmia of the brain, irrespective of spinal pressure. When the pulse pressure drops below 30, the patient is approaching incompatible levels by the route of vasomotor failure. Heroic measures are required in this phase, not only to increase the volume of space within the skull, by any means (decompression, hypertonic solutions by vein or bowel, spinal drainage), but in addition, cardiovascular stimulants are indicated. As a general rule, if pulse pressure can be maintained around 40, it will be found that even though unconsciousness may persist for days, survival and recovery usually follow.

HIGH TEMPERATURE

Temperature above 102 is indicative of medullary compression, or of an infection. In the presence of severe lacerations and marked hemorrhage, particularly from fracture of the base, the temperature often increases rapidly and, in fatal cases, may reach as high as 110. Temperature above 103 degrees, except in children, is a bad prognostic sign.

The reflexes are very variable. After a head injury, on admission one patellar reflex may be present, the other exaggerated. The same may be true of the Achilles or Babinski. Rechecking the reflexes an hour later, it may be found that those which were exaggerated have become sluggish or have disappeared. Exaggerated reflexes in one extremity often precede convulsions or paralysis in that extremity. Twitching or slight convulsions in an extremity, with exaggerated reflexes, may be the only focal sign of an epidural or of a subdural hemorrhage. Changing reflexes generally indicate that all is not well; whereas, reflexes that have become stabilized, generally report to a favorable prognosis.

Fixed pupils denote a bad prognosis. A dilated pupil on one side is indicative of a hemorrhage on the same side. The eye grounds, in our experience, rarely show changes sufficiently early to be of any aid in diagnosis or treatment. Diplopia and nystagmus are occasionally observed and are usually late signs. Mock, in 1354 hospital cases, reported choked disk in only ten.

Focal findings are the peripheral manifestations which help to localize the area of damage within the brain. Any of the cranial nerves may be injured at or near their exits with resulting facial paralysis, deafness, blindness, etc. Of course it is necessary to differentiate a central from a peripheral lesion.

The usual focal findings referred to in head injuries are facial paralysis or paralysis of an upper or lower extremity on one side. Twitching or convulsive movement of an extremity may be observed; such signs are just as important as a definite paralysis. From these focal signs, one can usually determine the side of the brain affected by an epidural or subdural hemorrhage. However, paralysis or convulsive movement of an extremity can be on the same side as the hemorrhage. And, of course, the hemorrhage can be contrecoupe —opposite the site of fracture.

Bleeding or cerebrospinal fluid from the nose or ears is pathognomonic of fracture of the base of the skull.

It is very necessary that a thorough complete physical examination be made in every head injury in order to discover possible associated injuries, as vertebral fracture, a fracture of the pelvis or a ruptured viscus, etc. Examination should include a complete blood count, as well as urinalysis. In an unconscious patient a catheter should be used. A ruptured urethra may be found—even a ruptured bladder, as was found in four of our cases.

PROGNOSIS

Eighty per cent of the fatal cases die within 24 hours. Patients alive after 48 hours have a reasonable chance of recovery in the absence of supervening complications. Stupor is evidence of supervening pressure and, in exclusion of hemorrhage, is all important. Should a patient remain in coma with a low pulse pressure and a rapid pulse rate for more than an hour the prognosis is bad. The return of consciousness with a low temperature,

a weak pulse or a high temperature bears a serious significance. The longer a patient lives, however, in spite of delayed return from stupor, the better the chance of recovery.

Patients who have been in prolonged stupor are more liable to develop sequelæ, although many recover without the slightest discomfort. Troublesome complaints occur more frequently after head injuries uncomplicated by fracture.

COMPLICATIONS AND SEQUELAE

Traumatic epilepsy that develops early is more likely to respond to treatment. A latent period of two years or more is apt to be permanent.

If meningitis develops, it will usually appear within the first 48 hours. It is due to the ingress of infection through a fracture line that runs through infected paranasal or mastoid sinuses.

Brain abscess results from compound fractures that are directly over the brain substance and not over the beds of the cerebrospinal fluid.

Pneumocephalus is a rather infrequent complication. Air is forced into the skull through a break over the paranasal sinuses by straining, sneezing or coughing. Periodic discharge of spinal fluid occurs when the head is bent forward. An absolute diagnosis is made by the x-ray.

Arteriovenous aneurisms between the carotid and cavernous sinuses are not uncommon and produce a characteristic bulging of the eyeball. This condition can be cured by complete or partial ligation of the internal carotid artery on the affected side.

The remaining and most important sequelæ of head injuries are subdural hematoma and subdural hygroma. These may follow severe or trivial injuries. A subdural hematoma is usually due to a tear in a vein as it crosses from the cerebral hemisphere to the longitudinal sinus. The blood may become encapsulated and appear as a tumor. It may cause no symptoms other than increased intracranial pressure. The diagnosis is made by ventriculography. The cure is obtained by evacuating the hematoma and removing the membranes, totally or in part.

TREATMENT

Relative to management head injuries may be divided into three groups:

1. Those with extensive damage to the brain. These patients are usually profoundly unconscious—often in severe shock, and rarely show any signs of compensation. The pulse is rapid, the blood pressure is low, and the temperature rises rapidly. No therapy is of any avail and all die within a few hours after injury.

2. Those with concussion, who do not have serious injury to the brain and do not develop increased intracranial pressure, all get well, and the treatment plays a very little part.

3. The patients in this group have sustained severe head injuries and the prognosis as to morbidity and mortality depends entirely on the attending surgeon's ability to recognize the injury and afford adequate treatment promptly.

An x-ray is indicated in every head injury where the force of the accident has been sufficient to make a skull fracture a possibility. In four per cent of Mock's cases, the injury was trivial, but the x-ray revealed an extensive skull fracture. A middle meningeal hemorrhage may be late in developing—without an x-ray, the patient may have been permitted to return to work. In depressed skull fractures, it is needed to show the depth of the depression, position of loose fragments, etc.

However, never x-ray the head injury in the presence of shock, coma or delirium. The transportation of a patient to the x-ray laboratory and taking numerous views of the skull in the presence of cerebral shock may be the last insult that produces death.

LUMBAR PUNCTURE

No other method of treatment has caused so much argument among the leading neurological surgeons. Dr. Cushing and Dr. Swift favor routine lumbar punctures. Drs. Bailey, Davis, Fay and Peet favor the procedure in selected cases—some of these men use it almost routinely.

Dr. Sachs and Dr. Dandy are opposed to lumbar puncture in all acute craniocerebral injuries.

Drs. Wright, Green and Smith advocate lumbar puncture in all clinical skull fracture cases. They claim that in no other way can intracranial injury be diagnosed. Temple Fay advocates that, in subarachnoid hemorrhage, the spinal punctures should be repeated in order to remove the irritating contents of the blood from this space—thus preventing complicating sequelæ. On the other hand, Dr. Dandy condemns lumbar puncture in all cases.

We believe that spinal puncture should not be done in shock. In the very aged a sudden change in intracranial tension following a spinal puncture may add too much strain upon the circulatory system which is already strained to the utmost. Again, in severe intracranial bleeding spinal puncture may increase the bleeding by reducing intracranial pressure.

We are all agreed that when we have a serosanguinous discharge from the ear, or in the pharynx as a result of basal fracture spinal puncture is contraindicated. In the first place, these patients are decompressing themselves, and in the second place, there is a definite danger of producing meningitis.

DEHYDRATION

Dr. Lewis Weed, in 1919, observed that a fall in cerebrospinal pressure could be obtained by administration of hypertonic solutions into the gastrointestinal tract or into the veins of animals. In 1921 Temple Fay found that the rise and fall in the fontanels of infants could be influenced by forcing fluids on the one hand, or by giving magnesium sulphate by mouth or bowel on the other. The skull of an adult is unable to expand or contract. If blood volume is reduced to make room for swelling or edema, anæmia follows. Therefore, clinical measures were applied to extract the excessive fluids so as to permit a return of blood to the brain.

In 1924 Howe observed that hypertonic glucose solution administered intravenously favored an absorption of fluid and edema from brain tissue.

During the past 10 years, it has been more and more obvious that hypertonic glucose properly used as a dehydrating agent is one of the most valuable measures that a clinician may employ under certain circumstances. Sodium chloride 20 to 30 per cent was employed intravenously for a time, but was found to be toxic, caused crenation of red blood cells, was diffused through the blood vessel walls and deposited in the brain where it produced a secondary edema and a secondary rise in intracranial pressure.

In 1932 a series of cases was reported which demonstrated that hypertonic glucose solution as compared with hypertonic salt solution has a similar but less severe effect.

Jackson, Dickerson, Donald, Gunther and Aaron through their research, found that hypertonic sucrose 50 per cent solution was far less toxic than glucose. Their experiments show that reduction of cerebrospinal pressure is maintained from six to 24 hours. Two hundred to three hundred c.c. of 50 per cent solution are necessary in most instances, as sucrose has only one-half the osmotic pressure effect of glucose.

Supplemental to intravenous dehydrating solutions the fluid intake should be limited below that normally required by the body, and magnesium sulphate should be given by mouth or rectum.

Surgery is not indicated while the patient is in shock except for one condition, that is, middle meningeal hemorrhage. However, from our observation, the patient is out of shock before the signs of meningeal hemorrhage are present.

INDICATIONS FOR OPERATION

1. Middle meningeal hemorrhage should be operated as soon as the diagnosis is made. Conservatism and watchful waiting here are dangerous. The classic signs are head injury with unconsciousness, a lucid interval and then relapse into unconsciousness. If there are no focal signs indicating the side involved, then both sides should be explored.

2. Depressed fractures. Every case of depressed fracture involving the inner table

should be operated, however small. They should not be considered nor performed as emergencies, never within 24 hours—wait a week.

3. Compound comminuted skull fractures must be treated at the earliest safe time, but not during the period of shock. Debridement, careful cleansing of the wound with removal of foreign fragments, attention to bleeding, removal of exposed brain tissue, etc.

4. Delayed intracranial bleeding. This is commonly known as chronic subdural hematoma. This condition may occur from several weeks to several months after the injury.

5. Subtemporal decompression is still advocated by Dandy. Occasionally one sees a case that does not respond to spinal puncture and dehydration at the end of 10 to 14 days —a decompression is indicated. In Mock's extensive study of skull fractures, about eight per cent were operated; depressed fractures, compound fractures, middle meningeal and subdural hemorrhage—one per cent of this operative group—a subtemporal decompression was indicated.

A subarachnoid accumulation of fluid, locked in place, thus preventing the resumption of normal cerebrospinal fluid circulation —a decompression may be the deciding factor in the recovery of the patient.

Long continued bed rest during convalescence is very important. A patient having a definite period of unconsciousness and definite evidence of concussion, should be kept in bed three weeks. If he has headaches and dizziness on arising, he should be put back to bed until he is able to get up without any untoward symptoms.

DISCUSSION

J. R. Caldwell, Wheeling: The speaker states that it would be ideal if all head injuries could be placed in the hands of specialists. I wish to state that to master his paper would be to become a specialist. This paper is the culmination of research and experience of the past fifty years, from which statistical data is formed leading to the best scientific treatment in the art of medicine and surgery.

Any surgeon who familiarizes himself with its contents has a better foundation for becoming a brain specialist, than the man who started two decades ago with all the available knowledge at that time.

Injuries to the head are perhaps the most common type of major trauma of the present day. With the wide and general distribution of such cases it behooves the general practitioner in the smallest center to familiarize himself in the interpretation of symptoms and the application of modern treatment in such cases. With so much discussion there is a distinct tendency toward confusion and overtreatment. It is just as important to know what not to do, as to know what to do.

The difference in opinion in the application of some of the methods of treatment and diagnosis, such as lumbar puncture and dehydration, lead us into the realm of confusion.

About 70 per cent of all head injuries, where the period of shock is of no serious consequence, will get well with expectant treatment. Of the remaining 30 per cent, perhaps half of them will die despite all scientific skill and rational treatment. Of the remaining 15 per cent, five per cent may be saved by proper care during the period of shock and the other 10 per cent by additional medical efforts, dehydration and timely surgery.

LUMBAR PUNCTURE

The value of spinal puncture cannot be overestimated, either from the standpoint of drainage, diagnosis or remedial approach.

The great danger in performing indiscriminate and copious spinal drainage, probably is attributable to poor judgment on the part of the surgeon. The danger of cerebral herniation in the presence of increased intracranial pressure is so well known that it needs no comment.

The suggestion that manometric pressure be taken in all cases in which spinal punctures are performed, and that the pressure be lowered 50 per cent, seems to have solved the problem. The use of lumbar puncture in the treatment of injuries to the head should be limited to those cases in which the patients do not respond to more conservative methods, and then the pressure should be decreased to half the original pressure.

Where the spinal fluid is bloody, William Sharpe suggests that by use of the test tube rack, the cerebrospinal fluid withdrawn at each puncture of spinal drainage is placed in a test tube and labeled consecutively with the date and the exact time attached, as the blood settles at the bottom of the tubes, the

blood percentage can be estimated approximately and the lessening blood percentage of successive punctures is clearly demonstrated.

I wish to mention the importance of another procedure having the same general use as lumbar puncture—that of cisternal puncture. In the hands of a competent surgeon there is no greater risk than the other procedure.

It is indispensable in cases where we suspect a spinal block. There is an absence of bad effects following a cisternal puncture, while most of the patients suffer from headaches and feel very uncomfortable after a lumbar tap.

So simple is it to obtain cerebrospinal fluids for diagnosis, after the technique is acquired, that the procedure becomes an office operation.

The use of dehydration, just as that of spinal puncture, depends entirely upon the indications in the individual case. Severe routine dehydration over a period of many days should be condemned just as strongly as the routine use of the spinal puncture. "The value of dehydration by hypertonic solutions given intravenously has been vastly overestimated. All that any hypertonic solution can, or is supposed to do, is to reduce brain volume. Treatment of any type of injury other than simple edema is therefore unjustifiable."—Chas. H. Moore.

Patients in whom the cerebrospinal fluid has a blood percentage higher than 10, should not be dehydrated for fear of hastening the coagulation of the free blood before it can be absorbed or drained, and thus a layer of supracortical hemorrhagic clot of varying amount may be formed.

There is a real danger that the organized residue of the blood clot may later produce cortical instability and even a partial blockage of the absorption of the cerebrospinal fluid.

This causes a chronic condition of the "wet" brain type, associated with persistent headaches, vertigo, early fatigue, and changes of personality of the depressed or irritable type, and even convulsive seizures.

SUCROSE

The 50 per cent solution of sucrose when administered intravenously does not cause an overt phlebitis in the injected vein and induces only a mild reaction if allowed to escape in small amounts into the subcutaneous tissues. Comparatively large amounts of sucrose in the circulation are apparently non-toxic and cause no serious disturbances in the chemistry or cytology of the blood. Being a disaccharide and foreign to the blood stream, sucrose induces a marked diuresis and is eliminated rapidly in the urine.

The admonition of "go slow" is very appropriate in the after treatment of head injuries. Lasting harm may be done by an attempt to shorten the convalescence or to agree to an unduly early return to the stress of every day life. The period of confinement to bed will depend upon the nature and extent of the injury; three to four weeks is a common average.

Sooner or later there comes a time when the question of resuming ordinary activity has to be considered. A testing time when a graduated and provisional resumption of activity is permitted will be instituted.

If there are sequelæ in the form of giddiness and headache, mental fatigue, and inability to concentrate, we must recognize these as warnings that the time is not yet opportune, and the patient must be advised to extend his convalescence.

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Cold water applied around an aching tooth will ease the pain; hot water would only make the entire side of the face swell up.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Among the large number of papers presented at the 34th Annual Meeting of the National Tuberculosis Association at Los Angeles, on June 20 to 23, were many of interest to the general practitioner. Before each annual meeting the Association prepares an "Abstract Sheet" of papers to be read in the pathological, clinical, administrative and social work sections. Space prevents the presentation here of more than a few.

A LOOK BACKWARD AND FORWARD

J. Arthur Myers, M.D., Minneapolis, Minn.

Our methods of treatment have advanced as fast as those for diagnosis. The indications for artificial pneumothorax have extended to the minimal lesion; surgical collapse has been introduced and perfected. The importance of the re-education and rehabilitation of recovering tuberculosis patients has been recognized and these programs are being developed everywhere. Largely as a result of the activities of the National Tuberculosis Association, mortality, morbidity, and infection attack rates have fallen spectacularly. Indeed, far more has been accomplished in the control of tuberculosis since the organization of the National Tuberculosis Association than in all the centuries of the past.

This is no time to relax our efforts; our programs must be extended and intensified. In many parts of the country more sanatoriums must be built; more general hospital beds must be made available. No community can hope to solve its tuberculosis problem until it has institutional beds available for every person who has tuberculosis in communicable form. The National Tuberculosis Association and all of its component organizations can control tuberculosis in this nation. As long as there is a single infected person in any community, a tuberculosis problem exists which must be combated.

PRIMARY TUBERCULOSIS INFECTION IN ADULTS

Henry C. Sweany, M.D., Chicago, Ill.

The classical primary tuberculous infection based on the Parrot Cornet-Cohnheim laws and the work of Ghon, Ranke and others, has apparently been so well established that any exceptions would tend to "prove the rule" rather than invalidate the established principles.

Within these general laws, however, there are variations that occur rather consistently, forming definite types. It has been repeatedly observed and reported that aboriginal peoples produce primary lesions much like those found in infants, and as a result of this it has perhaps been prematurely concluded that primary disease is always the same, irrespective of the age or race.

Primary infection in so-called civilized races has, perhaps, been considered similar to that in the aboriginal, but because of such a high infection rate in the past, the older age groups have all been infected before adult life, and there has not been sufficient opportunity to study the condition.

During the last generation, however, there has been a great change in the tuberculosis incidence over the so-called civilized world. The infection rate has gone down so much that in a great many places less than half or even a quarter of the population is infected at any one time, whereas a generation ago over three-quarters were infected by 15 years of age. In Chicago at the present, for example, the infection rate is such that about two-thirds of the population is uninfected by the time of graduation from the high school. In rural Minnesota, Iowa, and in regions of Scandinavia, it is even much lower. This changing condition is permitting more people to reach adult life without primary tuberculous infection, and as a direct corollary there are many more people receiving their primary infection in adult life. That in itself should be no mystery, but the important feature is that many of these primary infections are apparently not being recognized as such.

During the course of my studies on the autopsy material at the Municipal Tuberculosis Sanitarium, many of these cases of adult primary infections have appeared and are so frequently atypical that a special study of this type seemed justified. In brief, the study seemed to show that adult primary infections tend to become more localized in the parenchyma of the lung, and simulate the so-called reinfection type so closely that many times they are distinguishable only after careful study.

The most common type of these atypical forms are characterized by a small, parenchymal lesion that overflows into the surrounding tissues (perhaps by the finer bronchioles, as described by Loeschke), causing the formation of larger infiltrative masses which ulcerate into the reinfection type of disease. It is reinfection disease, but is connected by a direct chain of colonies to the first infection, and usually within a short period of time.

GROWTH FACTORS FOR THE TUBERCLE BACILLUS

C. H. Boissevain, M. D., and H. W. Schultz, M.D., Colorado Springs, Colo.

The tubercle bacillus grows rapidly and well on simple synthetic media but needs very heavy seeding. No growth occurs if less than about 10^{-1} mg bacilli are planted. On egg medium, on the other hand, growth occurs after seedings of 10^{-6} or 10^{-7} mg.

A possible explanation is that the tubercle bacillus needs another factor for growth in addition to the well-known asparagin, glycerine, phosphate, magnesium, potassium and iron. It has recently been found that certain pathological micro-organisms as staphylococci and diphtheria bacilli need accessory growth factors, as nicotinic acid amide and thiamin (vitamin B^1). The possibility of the existence of such a growth factor for the tubercle bacillus is of special interest as it may lead to the control of the disease by diet.

We first investigated the possibility of riboflavin (vitamin B^2) being the accessory factor as we had been able to identify riboflavin in cultures of tubercle bacilli by its fluorescence spectrum. However, the addition of riboflavin, either alone or together with other substances had only a very slightly favorable effect.

The growth promoting substance can be isolated from egg yolk by extraction with fat solvents. When this fat soluble growth factor is added to a synthetic medium, it forms a culture medium on which tubercle bacilli grow more rapidly than on egg medium, even after very small plantings.

TWENTY-FIVE YEARS AGO

(Taken from the October, 1913 issue of Journal)

Original articles in this issue were contributed by Doctors S. L. Jepson, S. B. Lawson, A. A. Shawkey, M. Mendeloff and E. E. Gibbons.

* * * *

Dr. Frank LeMoyne Hupp of Wheeling attended the 17th International Congress of Medicine in London, England and reported the proceedings in a letter to the JOURNAL.

. . . The busy whirlwind life here in London during the session of the largest medical congress the world has ever known, with 26 sections, each holding all day meetings, the general sessions, symposia, with the attending of museums wonderful, all of them, historical, hygiene and tropical development, preventive medicine, purely pathological and anatomical exhibits, the commercial too, must not be forgotten, to say nothing of the innumerable social functions, garden parties, and dinners and receptions, all this and more too, would seem reason sufficient for the tardy appearance of our communication to the members of our State Medical Association.

A remarkable address was given in the "Section of Radiology" by Dr. Robert Abbe, the senior surgeon of St. Luke's Hospital, New York, who opened a discussion on radio therapy for malignant growths.

Among the notable savants in the world's field of surgery reading papers and taking active part in the work were the following: Sir Victor Horsley, Sir William McEwen, Professor von Eiselberg, etc. Representing our own country were Doctors Murphy, Crile, Cushing and William Mayo. These four were awarded the honorary degree of F. R. C. S., a rare and unusual honor, by the Royal College of Surgeons.

The writer has only attempted to take his medical friends in West Virginia up to the rear seats of a vast arena . . . there to hear a little of the masters of our Art.

London, August 20th, 1913.

* * * *

At the examination in Charleston July 14-16, the State Board of Health examined 45 physicians for license to practice. The following were successful:

Doctors Ray M. Bobbitt, Hinton; E. T. Goff, Smithville; J. F. Easton, Clear Creek; W. T. Smith, Spencer; Guy Stalnaker, Eden; James T. Ferrell, Ripley; E. B. Lynch, Buckhannon; G. C. Morrison, Liverpool; E. L. Hazlett, Pittsburgh, Pa.; L. A. Petty, Charleston; Hugh Dunn, Sutton; Kenna Jackson, Sutton; E. M. Riley, Anderson, S. C.; J. W. Livesay, Leivasy; W. E. Myles, Maywood; M. L. Sowers, Pocahontas, Va.; Ira M. Fisher, Charleston; H. O. Van Tromp, French Creek.

* * * *

Dr. T. W. Moore of Huntington, was recently struck by an automobile and quite severely bruised. Fortunately no bones were broken.

* * * *

The following additional members of the medical staff of the Ohio Valley General Hospital have been appointed since our last issue: Genitourinary surgeon, H. S. West; physicians, H. P. Linsz and Dr. B. Best; surgeons, J. R. Caldwell and G. L. Vieweg; obstetricians, E. L. Armbrecht and J. O. Howells.

President's Page

Since our last meeting in White Sulphur Springs much water has passed over the mill, and though the wheel has groaned and creaked, thank God it still revolves making the machinery go round that turns out grist.

The first event of major importance to our profession was the National Health Conference in Washington, July 18-20, interestingly referred to in our JOURNAL for August; reported in detail with editorial comment in the *A. M. A. Journal*, July 30th, and the following issue of August 6th reflected the attitude of the nation's press, in general favorable to us, with comments on the threat directed at the A. M. A. by the Attorney General's office. How many of you, busy with the daily grind, stopped to read these important communications? Please do it now. They will furnish perspective for events yet to come.

The National Health Conference was the natural outgrowth of distant rumblings in the last few years emanating from certain persons, socially malcontent, to whom, we fear, too much of the national welfare has been entrusted. Though dignified by the name conference it was apparent at the time that it was not a democratic deliberative assembly and that its conclusions had long before been determined. Certain events since indicate clearly that persons high in authority in the federal government intend to discredit organized medicine by threats of prosecution, unfair propaganda, and Utopian appeals to the American people.

In logical sequence was the meeting in extraordinary session of the House of Delegates of the American Medical Association, September 16-17. This was a memorable occasion for our profession of which we may all be proud. Before this reaches you the proceedings of this important meeting will have been published in the *A. M. A. Journal*, and elsewhere in this issue of your own JOURNAL will appear the report by your executive secretary and the JOURNAL editor. Further comment need not be made here except that we may be proud of West Virginia's delegates, one of whom headed an important committee.

In the near future the Council will meet to consider action growing out of this meeting at Chicago, and from it will go out recommendations to each of you through your county society. May I urge *you* individually to do your part in this major encounter the outcome of which will determine largely *your* status in the future practice of your profession. This is a job your officers cannot do for you. Read the journals; study the situation; form your conclusions; then act with determination and promptness. The situation urgently demands *your* attention *now*.

President.

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SPECIAL A. M. A. MEETING

Vigorous and unyielding opposition to any and all systems of compulsory health insurance, and acceptance with few restrictions of the balance of the national health program presented at the National Health Conference in July, featured the extraordinary session of the House of Delegates of the American Medical Association in Chicago on September 16-17, 1938. The delegates went on record unanimously as being "not willing to foster any system of compulsory health insurance . . . convinced that it is a complicated, bureaucratic system which has no place in a democratic state . . . would undoubtedly set up a far reaching tax system . . . would lend itself to political control and manipulation."

Before commenting further upon the action of the A. M. A. House of Delegates, we pause to urge every Association member to read and study the final report adopted at the Chicago session and published elsewhere in this issue of the JOURNAL. Complete proceedings of the meeting were published in the September 24 issue of the *Journal of the American Medical Association.*

Outstanding in the report adopted by the House of Delegates were the following points and recommendations:

Recognition that health needs are not identical but depend on local conditions, and encouraging "county and district medical societies, with the approval of the state medical societies, to develop appropriate means to meet their local requirements."

Approval of the expansion of general hospital facilities where needed, with the condition that existing hospital facilities be utilized to the fullest extent.

Recommendation that federal state aid be allotted according to need rather than according to population, and that the program of the federal government be limited to financial and technical aid.

Approval of hospital insurance plans as community projects when operated on a nonprofit basis.

Approval of compensation for loss of wages during sickness, with the provision that the attending physician be relieved of the duty of certification of illness and recovery, which function should be performed by a qualified medical employee of the disbursing agency.

Appointment of a committee under the direction of Dr. Irvin Abell, President of the American Medical Association, to confer and consult with the proper federal representatives relative to the proposed National Health Program.

Recognition of the principle that the complete medical care of the indigent is a responsibility of the community and that such care should be organized by local governmental units and supported by tax funds.

Acceptance of the principle that expenditures for the expansion of public health and maternal and child health services should not include the treatment of disease except in so far as this cannot be successfully accomplished through the private practitioner.

Recommendation that public welfare administrative procedures be simplified and coordinated and that the provision of medical services be arranged by responsible local public officials in cooperation with the local medical profession.

There were nine members of the West Virginia State Medical Association in attendance at the A. M. A. House of Delegates meeting. All of them came away feeling that the American Medical Association had successfully and fearlessly met the issues now

confronting the profession. Dr. Walter E. Vest, West Virginia delegate, was named as chairman of one of the five special committees and was a member of the general committee which presented the consolidated report. Dr. Vest was later appointed to membership on the conference committee headed by Dr. Abell.

Following adoption of the report on the National Health Program, there developed an almost immediate spirit of confidence and assurance among the delegates and more than 300 representatives of state medical societies in attendance. The action on the report was unanimous, and there was apparently unanimous agreement among those in attendance that the position of organized medicine had been definitely and courageously established.

The House of Delegates, representing approximately 110,000 physician members of the American Medical Association, has spoken. We know now what we stand for and what we stand against in the proposed national health program. We know that most of the newspapers and leading editorial writers in America are with us. We know that the action in Chicago will be gratifying to all but the extreme radical socialists in this country. With proper confidence, we should know that independent medical practice in the United States will not be destroyed.

BIRTH CERTIFICATE CAMPAIGN

The individual today in every walk of life finds a birth certificate indispensable. This document is now demanded in literally hundreds of different situations where it is necessary to establish age, place of birth, or parentage. To mention only a few instances, a birth certificate may be of first importance in entering school, securing employment, establishing citizenship, inheriting property, settling insurance claims, securing old age pensions, voting, and even marrying.

In addition to the individual's need for a birth certificate, birth registration furnishes valuable statistics which are used in planning for the welfare of citizens throughout the state and nation.

Despite the great importance of birth registration, many births go unrecorded every year in West Virginia. The State Health Department hopes to correct this situation, at least in a large measure, by an intensive educational campaign designed to make every parent and citizen aware of how important it is to register all births. During this campaign, every parent with children unregistered will be asked to secure registration at once.

The State Health Department takes this opportunity in mentioning first of all to the physicians this forthcoming educational campaign. When the campaign is opened, we earnestly hope for your hearty cooperation in what we are trying to do with regard to promoting birth registration. The Department of Vital Statistics of the U. S. Public Health Service is collaborating in this endeavor. It is often the troublesome duty of the physician in charge to fill out these birth certificates, but the physician owes to the individual, the community, and the state, a proper registration of every birth in which he is in attendance.

PARKERSBURG PLAN RECOGNIZED

Several weeks ago the Academy of Medicine of Parkersburg launched a publicity campaign to educate the people of Wood County on socialized medicine. A definite program was established. Bi-weekly articles pointing out the fallacies of compulsory sickness insurance were published in the two Parkersburg dailies. Thousands of sickness insurance pamphlets were secured through the Bureau of Medical Economics of the American Medical Association and distributed to the public through the offices of the private practitioners. Service clubs and similar organizations were addressed by society members. Radio time was secured. The results have been more than gratifying.

This public relations program of the Parkersburg Academy was presented before the

special meeting of the A. M. A. House of Delegates at Chicago on September 16. The following day, after careful study by the committee to which the report had been referred, the House of Delegates adopted the following report:

> "A plan for publicity against regimentation of physicians: This communication is a very clear and informative statement of a plan devised and carried out in seven counties in West Virginia, a plan well worth studying by our component societies. Especially noteworthy is the emphasis placed on the importance of each and every physician constantly and persistently carrying on a campaign of education among his individual patients. There is no definite resolution proposed in this communication. The committee again commends the work of the Parkersburg Academy of Medicine to the consideration of our members."

We congratulate the Parkersburg Academy on the success of its excellent program and the national recognition which it received. We also commend the Kanawha and Eastern Panhandle Medical societies for good work along the same line. Further, we call attention to the splendid work of the Ohio County Medical Society which is reported in their County Society report in this issue of the JOURNAL.

DEATH OF A REPUBLICAN

Mr. Henry Mencken, in the August 21 issue of the *Baltimore Sun*, concludes that the boys in Washington are in earnest about bringing anti-trust charges against the American Medical Association. This article, incidentally, is a "honey." The idea behind the Washington ebullience is, of course, to break down organized medicine from within and thereby eliminate the major opposition to socialized medicine. If and when this opposition crumbles and the New Deal is victorious in its newest great social reform, we may look for a new style in reporting obituary notices in the daily press. We anticipate something like the following:

Mortimer Cutlip, 41 year old farmer of Cutlip's Bend in Otter District, died yesterday from a complication of diseases in the office of S. O. Bivens, chairman of the Democratic County Executive Committee. Mr. Cutlip had been confined in Mr. Biven's office since Monday of last week and was near the top of the surgical waiting list when the end came. A herniotomy was offered the deceased on Friday, but he refused as his case had been diagnosed as acute appendicitis.

Mr. Cutlip first became acutely ill two weeks ago while returning with his children from the Vitamin B exercises at Wolfe Creek. The case investigator was immediately summoned and later the district supervisor was called in. When Mr. Cutlip's condition became worse, the field nurse was brought in, and she authorized three 15 minute visits from Dr. 15-B. The doctor had already filled his quota of calls for that day, but attended Mr. Cutlip early the next morning, made the diagnosis of acute appendicitis, and sent the necessary forms to Washington.

Unfortunately the forms did not return until last Saturday. Had these forms been received Friday morning, Mr. Cutlip could have received an immediate operation as Friday was "Appendectomy Day" at the Blessed Mercy Hospital at Ashton.

A special meeting of the County Executive Committee was held Monday evening to see if arrangements could not be made to send Mr. Cutlip to Glen Procious where appendectomies are performed on Wednesday by Dr. Seven Six, one of the state's most outstanding abdominal surgeons. While the committee was sympathetic, Chairman Bivens said that nothing could be done because the monthly allotment for appendicitis travel had been expended on Sheriff Mollison's aunt.

With Mr. Cutlip at the end were his wife, his three little girls, and the County Case Load Supervisor. The deceased will be missed by his many friends in Cutlip Bend. He was a member of the Republican Party.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

PUBLIC HEALTH VACANCIES

There are several vacancies in public health work in West Virginia for physicians and nurses. Physicians applying for such vacancies must be under 36 years of age, must be licensed in West Virginia, must have had postgraduate training in public health work for at least four and one-half months at a recognized school of public health, and must have good habits. A good personality is desirable.

Scholarships have been available in the past to train physicians and nurses in public health work and there is every reason to believe that these scholarships will continue to be made available. Physicians and nurses who are interested in entering public health work as a career should get in touch with Dr. Thomas H. Blake, chairman of the Committee on Scholarships, State Health Department, Charleston.

LOGAN SYPHILIS CLINIC

Dr. R. A. Vonderlehr, assistant surgeon general, U. S. Public Health Service, visited the State Health Department on September 8 and, accompanied by Dr. Thomas H. Blake and Dr. C. N. Scott, made a study of the Logan and McDowell County Health Departments for the purpose of selecting the county most suitable for a comprehensive field study of syphilis.

The Public Health Service has extended to approximately 12 states, the opportunity to conduct a field demonstration unit for the diagnosis, treatment and control of syphilis. The Public Health Service will subsidize fifty per cent of this project, the state and county will constitute the cooperating agencies. In this field study, a model demonstration unit will provide adequate diagnostic and treatment facilities with a personnel consisting of a full time venereal disease control officer, two medical case workers and a clerk. There will be a centrally located clinic and sub-clinics or treatment centers established in centers of population throughout the county.

Logan county has been selected for this project and Dr. Vonderlehr intends to give his recommendation to the surgeon general and recommend that the project be carried out for a minimum period of three years, and preferably six years or longer. This project will serve as a demonstration of the best method of controlling syphilis in any given area. Syphilis can only be controlled through treatment of every known case and apprehension of every source of infection. These principles will be applied in the proposed study. It is intended to treat only indigent cases in the clinics and to extend the services of the case workers to private practitioners in the county. If the study is to be successful, every physician must cooperate with local and state public health agencies.

Arrangements will probably be completed and the project started approximately October 1. The general plan has received the approval of the Logan County Medical Society.

CARDIAC PATIENTS

Stair climbing is not nearly so dangerous to the patient with heart disease as some persons suppose, Dr. Ernst P. Boas declares in his article "How Restricted Is the Life of a Patient with Heart Disease?" in the September issue of *Hygeia.*

Stair climbing is traditionally a great bugaboo to the patient with heart disease as well as to his physician. Patients with good cardiac reserve may climb stairs, if they walk slowly and if they rest on the way when necessary. It does not harm them.

However, running up, two steps at a time, may provoke serious damage. The cardiac patient must acquire an unhurried free activity and with it a sense of leisure. It is the everlasting rush from one place to another, from one task to the next that causes undue strain.

All competitive sports in which the sense of rivalry makes the participant forget his fatigue and drives him to greater efforts should be avoided. Indeed, the only safe universal exercise is walking.

Golf is not a game for cardiac patients, the author believes, and swimming too is inadvisable, although bathing and taking a few strokes are usually harmless.

Children with heart disease may not run, play baseball, roller skate or ride bicycles. The average child keeps his body fit by his incessant activity, and these activities should be reduced to a reasonable level without making the child too unhappy or introspective.

Patients with damaged hearts need not be chairridden invalids. Rest is certainly better than uncontrolled exertion; but measured and regulated bodily activity has positive physical as well as psychic benefits.

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on Thursday evening, September 8, with Dr. A. D. Ruedemann of the Cleveland Clinic as the guest speaker. His address, pertaining to ophthalmology, was of much interest. Open discussion followed.

BOYD F. BROWN, *Secretary*.

EASTERN PANHANDLE

The regular quarterly meeting of the Eastern Panhandle Medical Society was held at the Hilltop House, Harpers Ferry, at noon on September 14 with 21 members and visitors in attendance. Dr. A. W. Armentrout presided. Following luncheon, Dr. Anthony V. Cadden, superintendent of Hopemont Sanitarium, discussed the newer methods of diagnosis of tuberculosis and the differential diagnosis of such cases.

Dr. J. C. Helm, Hedgesville, and Dr. Z. K. Waters, Martinsburg, were admitted to membership in the society.

Dr. Armentrout reported on the meeting of the State Society at White Sulphur Springs. Dr. Morison, Dr. Coughlan and Dr. Porterfield discussed the coming campaign on birth registration.

The nurses of the Eastern Panhandle section will meet with the society at its next meeting, to be held in Martinsburg on December 14. Officers will be elected at this meeting.

M. H. PORTERFIELD, *Secretary*.

KANAWHA COUNTY

Dr. R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association, Chicago, was the guest speaker at the September 13 meeting of the Kanawha Medical Society which was held at the Daniel Boone Hotel, Charleston. Dr. Leland spoke on "The National Health Conference," pointing out its implications regarding prospective trends in medical practice. A general round table discussion followed Dr. Leland's excellent presentation.

Dr. Leland also addressed the Kiwanis Club, Charleston, at noon on September 13 on the subject of socialized medicine.

A. SPATES BRADY, JR., *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular meeting at the Aracoma Hotel, September 14, at 8:00 p. m. Dr. A. Spates Brady, Jr., of Charleston, read a paper on "The Management of Congestive Heart Failure", which was discussed by Dr. George Crisler, also of Charleston. Dr. Russel Kessel of Charleston read a paper on "The Treatment of Artificial Menopause." Both of these papers were full of interest.

As this was the first meeting of the fall, the society wishes to take this opportunity to express its appreciation to the State Association for the fine postgraduate conferences furnished us during the summer.

J. L. PATTERSON, *Secretary*.

McDOWELL COUNTY

A meeting of the McDowell County Medical Society was held in the Appalachian Community Room, Welch, at 8:15 p. m. on September 14, 1938, with Dr. C. B. Chapman, president, officiating.

The proposed program of socialized medicine adopted by a recent conference in Washington, D. C., was brought before the meeting and discussed. Dr. Shanklin wanted to know the will of the society on this matter so he could communicate it to two of the state representatives who are to meet in Chicago this week to determine what the attitude of the American Medical Association would be. The state representatives were to be Dr. Vest and Dr. Fawcett. A resolution was adopted that the McDowell County Medical Society had sufficient confidence in these two men to give them complete authority to act in our behalf in this meeting. There was a general feeling among the members that what they knew about this program was not as extensive as it might be and that any type of medical practice without the physicians being in control would be unsatisfactory. Several members went so far as to suggest that they were against the whole program.

A letter from Dr. Point, president of the West Virginia Maternal Health Federation was brought up and read and discussion given by the members. The idea was to become associated with the Federation and start a birth control clinic under an appointed physician, the physician to be elected or appointed by the society. A motion was made to table the proposition and this was carried.

Following the discussion, a short paper was read on "Immune Therapy in Contagious Diseases" by Dr. C. B. Chapman.

Dr. J. Howard Anderson brought up the question of diphtheria after immunizing with toxoid and this was discussed by various members.

Dr. E. N. Cooley of Coalwood was elected into membership, his credentials and membership fee being vouched for by Dr. J. K. Cooper.

F. E. LA PRADE, *Secretary*.

OHIO COUNTY

At a special meeting of the Ohio County Medical Society, held August 19, at the Ohio Valley General Hospital in Wheeling, West Virginia, the following statement met with the unanimous approval of the members of the society:

"The organized medical profession of Ohio County does not desire to take an active part in politics, but we do have a very vital interest in certain legislation which has been proposed recently and which threatens a general socialization and regimentation of medical practice. We wish to object very vigorously to the widespread plan submitted by the president's interdepartmental committee which proposes to spend a minimum of $850,000,000, yearly for the reorganization of medical practice. There are certain good points contained in the plan such as that providing for medical care for indigents at state or federal expense. The plan as a whole is considered fantastic and should not be approved. We desire to know whether or not the candidates for the House of Representatives and the Senate from this district believe we are correct in our position and propose so to vote. If both contesting candidates are found to be in sympathy with our views, we propose to take no part in the political campaign. In case one party approves and the other disagrees, we propose to use our influence in favor of the party who is willing to support our views."

A motion was made, seconded and carried, instructing the Legislative Committee to approach both candidates for Congress and ascertain the attitude of each with regard to the subject mentioned above and secure a definite reply from each in writing.

The society went on record as being opposed to the recommendations of the interdepartmental committee headed by Miss Josephine Roche.

The result of the action of the society was published in the September 15 issue of the *Wheeling News*, which carried public statements from A. C. Schiffler, Republican, and Robert L. Ramsay, Democrat, rival candidates for Congress from the first West Virginia district, setting forth that they were opposed to the socialization of medicine or any other plan to regiment the medical profession.

These specific questions were directed to the two candidates. The first asked if the candidates were in favor of the government building hospitals and providing free or low cost treatment for all classes by physicians subject to governmental control. The second asked if they favored the appropriation of $850,000,000 for the purpose of building hospitals, employing doctors and otherwise entering the practice of medicine. The third question asked if the candidates believed that the practice of medicine under federal control would render better medical service, improve the character of practice and elevate the standard of practitioners. To all three questions, both candidates answered "no."

The next meeting of the society will be held at the Ohio Valley General Hospital on the evening of September 30 with Dr. A. E. McClue, State Health Commissioner as the guest speaker.

R. W. LUKENS, *Secretary*.

PRESTON-MONONGALIA

The annual joint meeting of the Preston and Monongalia county medical societies was held at Hopemont Sanitarium on the evening of September 8, with more than 100 doctors and guests in attendance. Dinner was served at 6:15 o'clock after which the scientific session was called to order by Dr. A. V. Cadden, Hopemont superintendent.

The guest speaker for the occasion was Dr. Ray M. Bobbitt, Huntington, president-elect of the West Virginia State Medical Association. His subject was "Medical Management of Urinary Tract Infections," illustrated with x-ray films. This was a most interesting and practical presentation and a liberal discussion followed.

WEIGH OF A TRANSGRESSOR

Fat persons often eat more than they should because they feel hungry when they shouldn't, and the more they stuff, the larger their stomachs become—and there you are, says Dr. Robert A. Kilduffe in "The Weigh of a Transgressor," which begins in the September *Hygeia*.

When large amounts of food are regularly thrown into the stomach it distends, loses part of its ability to contract and eventually remains distended, so that it takes more and more to fill it or even to make it feel as if much of anything has been thrown into it.

General News

ACTION AT CHICAGO

The House of Delegates of the American Medical Association met in extraordinary session in Chicago on September 16 and 17, 1938, to consider the five points of the proposed National Health Program submitted before the National Health Conference in July. After two full days of intensive work, final action was taken and the position of the organized medical profession was definitely established. The unanimous action of the House of Delegates on the National Health Program follows:

1. Under Recommendation I on Expansion of Public Health Services: (1) Your committee recommends the establishment of a federal department of health with a secretary who shall be a doctor of medicine and a member of the president's cabinet. (2) The general principles outlined by the technical committee for the expansion of public health and maternal and child health services are approved and the American Medical Association definitely seeks to cooperate in developing efficient and economical ways and means of putting into effect this recommendation. (3) Any expenditure made for the expansion of public health and maternal and child health services should not include the treatment of disease except in so far as this cannot be successfully accomplished through the private practitioner.

2. Under Recommendation II on Expansion of Hospital Facilities: Your committee favors the expansion of general hospital facilities where need exists. The hospital situation would indicate that there is at present greater need for the use of existing hospital facilities than for additional hospitals.

Your committee heartily recommends the approval of the recommendation of the technical committee stressing the use of existing hospital facilities. The stability and efficiency of many existing church and voluntary hospitals could be assured by the payment to them of the costs of the necessary hospitalization of the medically indigent.

3. Under Recommendation III on Medical Care for the Medically Needy: Your committee advocates recognition of the principle that the complete medical care of the indigent is a responsibility of the community, medical and allied professions, and that such care should be organized by local governmental units and supported by tax funds.

Since the indigent now constitute a large group in the population, your committee recognizes that the necessity for state aid for medical care may arise in poorer communities and the federal government may need to provide funds when the state is unable to meet these emergencies.

Reports of the Bureau of the Census, of the U. S. Public Health Service and of life insurance companies show that great progress has been made in the United States in the reduction of morbidity and mortality among all classes of people. This reflects the good quality of medical care now provided. Your committee wishes to see continued and improved the methods and practices which have brought us to this present high plane.

Your committee wishes to see established well coordinated programs in the various states in the nation, for improvement of food, housing and the other environmental conditions which have the greatest influence on the health of our citizens. Your committee wishes also to see established a definite and far-reaching public health program for the education and information of all the people in order that they may take advantage of the present medical service available in this country.

In the face of the vanishing support of philanthropy, the medical profession as a whole will welcome the appropriation of funds to provide medical care for the medically needy, provided, first, that the public welfare administrative procedures are simplified and coordinated; and second, that the provision of medical services is arranged by responsible local public officials in cooperation with the local medical profession and its allied groups.

Your committee feels that in each state a system should be developed to meet the recommendation of the National Health Conference in conformity with its suggestion that "The role of the federal government should be principally that of giving financial and technical aid to the states in their development of sound programs through procedures largely of their own choice."

4. Under Recommendation IV on a General Program of Medical Care: Your committee approves the principle of hospital service insurance which is being widely adopted throughout the country. It is capable of great expansion along sound lines, and your committee particularly recommends it as a community project. Experience in the operation of hospital service insurance or group hospitalization plans has demonstrated that these plans should confine themselves to provision of hospital facilities and should not include any type of medical care.

Your committee recognizes that health needs and means to supply such needs vary throughout the United States. Studies indicate that health needs are not identical in different localities but that they usually depend on local conditions and therefore are primarily local problems. Your committee therefore encourages county or district medical societies, with the approval of the state medical society of which each is a component part, to develop appropriate means to meet their local requirements.

In addition to insurance for hospitalization we believe it is practicable to develop cash indemnity insurance plans to cover, in whole or in part, the costs of emergency or prolonged illness. Agencies set up to provide such insurance should comply with state statutes and regulations to insure their soundness and financial responsibility and have the approval of the county and state medical societies under which they operate.

Your committee is not willing to foster any system of compulsory health insurance. Your committee is convinced that it is a complicated, bureaucratic system which has no place in a democratic state. It would undoubtedly set up a far-reaching tax system with great increase in the cost of government. That it would lend itself to political control and manipulation there is no doubt.

Your committee recognizes the soundness of the principles of workmen's compensation laws and recommends the expansion of such legislation to provide for meeting the costs of illness sustained as a result of employment in industry.

Your committee repeats its conviction that voluntary indemnity insurance may assist many income groups to finance their sickness costs without subsidy. Further development of group hospitalization and establishment of insurance plans on the indemnity principle to cover the cost of illness will assist in solution of these problems.

5. Under Recommendation V on Insurance Against Loss of Wages During Sickness: In essence the recommendation deals wtih compensation of loss of wages during sickness. Your committee unreservedly endorses this principle as it has distinct influence toward recovery and tends to reduce permanent disability. It is, however, in the interest of good medical care that the attending physician be relieved of the duty of certification of illness and of recovery, which function should be performed by a qualified medical employee of the disbursing agency.

6. To facilitate the accomplishment of these objectives, your committee recommends that a committee of not more than seven physicians representative of the practicing profession under the chairanship of Dr. Irvin Abell, president of the American Medical Association, be appointed by the speaker to confer and consult with the proper federal representatives relative to the proposed National Health Program.

A number of additional matters of importance were acted upon at the Chicago meeting. Following discussion of the term, "medically indigent," the following definition was officially adopted by the House of Delegates, "A person is medically indigent when he is unable, in the place in which he resides, through his own resources, to provide himself and his dependents with proper medical, dental, nursing, hospital, pharmaceutical and therapeutic appliance care, without depriving himself or his dependents of necessary food, clothing, shelter and similar necessities of life, as determined by the local authority charged with the duty of dispensing relief for the medically indigent."

The following resolution relating to the Bureau of Medical Economics was adopted on the last day of the session: "WHEREAS, There is a demand among state and county medical associations for help and advice, for surveys and the development of local and state programs for the care of the indigent and low income groups of the people; therefore be it *Resolved*, That it is the sentiment of this House of Delegates that it would heartily approve of an action by the Board of Trustees looking toward the sensible expansion of the Bureau of Medical Economics to accommodate the immediate and growing demand."

The members who were appointed on the conference committee with Dr. Irvin Abell were Dr. Walter E. Vest, West Virginia; Dr. Walter F. Donaldson, Pennsylvania; Dr. H. A. Luce, Michigan; Dr. Fred W. Rankin, Kentucky; Dr. Frederic E. Sondern, New York, and Dr. E. H. Cary, Texas. Dr. Vest served as chairman of one of the five special committees of the House of Delegates and as a member of the general committee.

The complete verbatim transcript of the meeting of the House of Delegates appeared in the September 24 issue of the *Journal of the American Medical Association*.

Mental hospitals account for more than half the beds in this country, but forty-seven times as many patients are admitted to hospitals of other types.

HEART ASSOCIATION MEETING

The annual fall meeting of the West Virginia Heart Association will be held jointly with the Cabell County Medical Society and the West Virginia Fellows of the American College of Physicians at Huntington on October 13, according to a recent announcement from Dr. Oscar B. Biern, Huntington, president. Headquarters will be at the Governor Cabell Hotel.

During the morning of October 13, from 10:30 o'clock until noon, a demonstration of heart cases will be conducted at the St. Mary's Hospital, showing the technique of lateral fluoroscopy and lateral chest plates. These demonstrations will be carried on by Dr. Sam Brown and Dr. Julien Benjamin of Cincinnati and Dr. A. Carlton Ernstene, Cleveland.

The afternoon program will be held in the ballroom of the Governor Cabell Hotel beginning at two o'clock. Speakers and their subjects will be Dr. Brown on "Roentgenological Diagnosis of Heart Disease," Dr. Ernstene on "Common Errors in Cardiac Diagnosis," and Dr. Benjamin on "Electrocardiographic Slide Demonstration."

During the afternoon and evening sessions, cocktails and dinner will be served at the Guyan Country Club.

Dr. Claude S. Beck, Professor of Surgery at Western Reserve University, Cleveland, will be the guest speaker at the evening joint session with the Cabell Society and the College of Physicians, which will be held at the Governor Cabell Hotel. His subject will be "Surgery of the Heart," with motion picture and lantern slide demonstrations.

The sessions in Huntington will be open to all physicians and are not limited to members of the groups sponsoring the meeting. Dinner reservations should be made with Dr. Walter C. Swann, Professional Building, Huntington.

POSTGRADUATE ASSEMBLY

In the neighborhood of eighty distinguished teachers and clinicians will appear on the program of the twenty-third International Assembly of the Inter-State Postgraduate Medical Association of North America when it convenes in the public auditorium of Philadelphia, Pennsylvania, October 31, November 1, 2, 3, and 4, 1938. All scientific and clinical sessions will be held in the auditorium. Hotel headquarters will be at the Benjamin Franklin.

The subjects and speakers have been selected to consider practically all the subjects of greatest interest to the medical profession in general. The Association, through its various officers and members of the program committee, extends a very hearty invitation to all members of the profession in good standing in their state and provincial societies to attend the Assembly. The registration fee is $5.00.

Hotel reservations may be made by writing to Mr. Thomas E. Willis, chairman of the Hotel Committee, Chamber of Commerce Building, Twelfth and Walnut Streets, Philadelphia, Pa.

Dr. Elliott P. Joslin, Boston, is president of the Association and Dr. George W. Crile, Cleveland, is chairman of the Program Committee.

SOUTHERN MEDICAL

The thirty-second annual meeting of the Southern Medical Association will be held at Oklahoma City on November 15, 16, 17 and 18, 1938, with headquarters at the Oklahoma Biltmore Hotel. The Skirvin Hotel will be headquarters for the American Academy of Pediatrics, the Huckins will be headquarters for the American Society of Tropical Medicine and the National Malaria Committee, and the Black Hotel will be headquarters for the Southern Association of Anesthetists.

A large number of reservations from West Virginia have already been received for this year's Southern Medical meeting and it is understood that arrangements are now under way to run a number of special cars out of Huntington carrying the West Virginia delegation. Hotel reservations in Oklahoma City may be secured by writing Dr. P. M. McNeill, chairman of the Hotel Committee, Ninth Floor, Commerce Exchange Building.

TUBERCULOSIS MEETING

The seventeenth annual meeting of the West Virginia Tuberculosis and Health Association was held at the Hotel Pritchard, Huntington, on September 26 and 27, 1938, with an excellent attendance. President of the Association is Dr. George F. Evans, Clarksburg.

Association members who appeared on the Huntington program were Dr. Walter C. Swann, Huntington; Dr. Ray M. Bobbitt, president-elect of the West Virginia State Medical Association; Dr. G. H. Barksdale, Charleston, Dr. Oscar B. Biern, Huntington; Dr. A. V. Cadden, Hopemont; Dr. Donald L. Butterfield, and Dr. Leo H. Mynes, Charleston, and Dr. George M. Lyon, Huntington.

COMING MEETINGS

The annual scientific session of the Academy of Physician Medicine will be held in Washington, D. C., on October 24-26, 1938, with headquarters at the Willard Hotel. The meeting will be held in cooperation with the government medical and scientific services. Clinics will be at Walter Reed General Hospital and Saint Elizabeth's Hospital. Further information may be secured by writing Dr. Herman A. Osgood, secretary, 144 Commonwealth Avenue, Boston, Mass.

The Conference on Rural Medicine will be held at the Mary Imogene Gassett Hospital, Cooperstown, New York, on October 7 and 8, 1938. General subjects for discussion will be Rural Morbidity, General and School Health Programs in Rural Areas, Postgraduate Medical Education in Rural Areas, and Economics of Rural Medicine. Among the principal speakers at the two day session will be Dr. R. H. Leland, director of the Bureau of Medical Economics of the American Medical Association.

The sixty-seventh annual meeting of the American Public Health Association will be held in Kansas City, Missouri, on October 25-28, 1938, with an expected attendance of more than 3500. Organizations meeting jointly with the Public Health Association include the American School Health Association, the Conference of State Laboratory Directors, the Conference of State Sanitary Engineers, the International Society of Medical Health Officers, the American Association of State Registration Executives and the Association of Women in Public Health.

MALARIA EPIDEMICS

The incidence of malaria ebbs and flows like the tides, ebbing as a community builds up a resistance to the disease and returning to its peak as the immunity decreases, declare Florence Pryor and A. W. von Struve in their article "Of Mosquitoes and Men: II" in the September issue of *Hygeia*.

In this country the malarial tide rises to a peak every seven years, in Panama every two years. America suffered its last cyclic peak in 1935.

Over the years the human body builds up an immunity against the malarial organisms and gradually kills them off. A group population, too, builds up an immunity. Thus as the resistance decreases, the rate of sickness rises.

MEDICAL ECONOMICS

MR. MENCKEN SPEAKS

During the past two months the nation's press has been filled with news stories, comments and editorials for and against the regimentation of the medical profession. From all that has been written on the subject, our vote for the best presentation goes to Mr. H. L. Mencken who, in the *Baltimore Sun* of August 21, turned out a stalwart defense of the medical profession under the title, "Medicine Under the New Deal." So well does Mr. Mencken present our own views that we herewith publish his article in its entirety:

The project of the New Deal Kremlin to liquidate the American Medical Association under the Sherman Act appeared at first glance to be only an elephantine sort of practical joke, and in that character I discussed it lightly in the *Sunpaper* of August 5. But in a little while news came from Washington that the boys really proposed to go through with the show, and on August 13 a talented New Deal professor, Dr. Walton Hale Hamilton, was assigned to set me right about it and put me in my place.

I have read Dr. Hamilton's exposition in an humble spirit, but can only report that it leaves me profoundly unimpressed. It is smart but not adroit; voluptuous but not persuasive. Its substance is contained in the following paragraph:

> The technology of medicine has made its great advances by trial and error; the arrangements under which patients have access to medical services must be kept subject to a like revision. It is silly to encourage experimentation in the medical laboratory and to forbid it in the realm of medical economics.

Well, what does this mean? If it means anything at all, it means that the American Medical Association is opposed to all such experimentation, and is trying by some means or other to stop it. Is there any truth in that allegation? There is no truth in it whatsoever.

The plain and simple truth is that the *Journal* of the Association, for eight or ten years past, has given over a large part of its space to the description and discussion of new "arrangements" of medical practice, and that more than one of these "arrangements" has been passed as unobjectionable, and is being tested at this very moment by members of the association in the highest standing.

I point, as a near and obvious example, to the

scheme of the Associated Health Service of Baltimore. That organization, which now has nearly 25,000 members, is not only tolerated by the local bigwigs of the A. M. A., but was actually launched and underwritten by some of them. All of the Class A hospitals of Baltimore, absolutely without exception, have agreed to accept subscribers to the service as patients, and all or nearly all of them contributed to the funds needed to set it going. Two of its directors are Dr. Winford H. Smith, director of the Johns Hopkins Hospital, and Dr. Arthur J. Lomas, director of the University Hospital, and not a few of the staff doctors of both hospitals have joined it as members, and brought in their wives and children.

The reasons for this tolerance are not far to seek. They lie in the plain and single fact that the Health Service does not undertake to practice medicine, but simply provides its members with hospital care and accommodation. Every one of them is free to choose his own doctor, and any doctor may be chosen who has the privilege of taking patients to any Baltimore hospital. There is no intervention between doctor and patient. There is no shading or conditioning of the doctor's professional dignity and independence.

The "arrangements" to which the American Medical Association objects, and quite properly objects, are entirely different. They not only offer hospital accommodation, but also medical service. They employ doctors, organize them into staffs, put them under superiors (some medical, but others lay), and hire them out to subscribers. Whatever the subscribers pay for their services goes, not to the doctors, but to the organization. It pays them whatever they are willing to work for, and keeps the rest.

Obviously, no doctor who works under such conditions can be said to maintain a strictly professional status. He may have a good job; he may like it, and he may give competent and conscientious service to the patients assigned to him, but in the last analysis they are the association's patients, not his. It may take them away from him at will, and assign him others. It may take them all away from him by dismissing him. They exist as his patients only by the association's grace, and on conditions that it lays down.

Certainly the lawyers in the Department of Justice must be well aware that an analagous effort to invade and deprofessionalize their own profession has been under way for years and that nearly all the decent lawyers in America have opposed it violently and gone into court time and again to prevent it. All the objections that these decent lawyers have brought against the practice of law by corporations are valid against the practice of medicine by corporations.

The present disingenuous assault upon the American Medical Association did not originate in the Department of Justice. It originated in quite other quarters and has been going on for a long while. There are doctors who aspire to office in the association, with all the honors and dignities thereto appertaining, but do not seem to be able to get the necessary votes; they appear to believe that their chances would be better under some sort of medical new deal. And there are quacks who have felt the association's heavy hand; they are against it on all counts and to the death.

Both these parties have been on the warpath for years. Of late they have been joined by a miscellaneous rabble of pinks, some of them outright converts to the Moscow hooey and other members of the "I'm Not a Communist—But" Association. The aim of these brethren is to nationalize the profession of medicine in the United States as it has been nationalized in Russia. Some of them say so frankly, and undertake to prove idiotically that the Russian system is better than the American. The rest, less honest, root for it without openly advocating it.

All the pink weeklies and other manic-depressive sheets are hot against the A. M. A. and belabor it constantly. They denounce it under the name of the medical trust, and allege that its members are racketeers who rob their patients and oppress the poor. The justice and decency of these charges may be indicated by putting them into concrete terms. What they allege, in plain English, is that such men as Dr. Thomas S. Cullen, Dr. Dean Lewis and Dr. John T. Finney are racketeers, and that scores of able and faithful men and women who labor in the Johns Hopkins and University of Maryland dispensaries every day are oppressors of the poor.

The chief butt of all such scurvy liars is Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*. In the fulminations of the pink weeklies he is commonly promoted to the presidency of the association and depicted as its Stalin, Hitler and Mussolini. I happen to be well acquainted with Dr. Fishbein, and may be presumed to have some qualification for judging him as an editor. It is my belief that no abler, more honest, more intelligent or more courageous editor is in practice in the United States.

In all the history of American medicine, no other medical editor save his predecessor and mentor, Dr. George H. Simmons, has labored more valiantly and effectively to raise and safeguard the standards of the profession. He has been in the forefront of every effort, by whomsoever initiated, to put down buncombe and quackery and to promote sound medicine. Every improvement that has been made in his time, whether in professional education, in hospital service, in research and experiment, or in the bettering of relations between doctors and the public, has had his energetic support.

The quacks of all schools are naturally against him. The osteopaths and the chiropractors, the patent medicine harpies and the Christian Scientists have been banging away at him for years. Now they have got the support of the New Deal. It is a logical and legitimate alliance.

Obituaries

DR. M. R. BELL

The death of Dr. Monsell Ray Bell occurred August 30, 1938 at his home in Keyser, West Virginia, at the age of sixty. He had been ill for some time; death being caused by a number of complications.

After public school education, Dr. Bell was graduated from the University of Maryland School of Medicine in 1903 and obtained his West Virginia license in the same year.

Dr. Bell was well known in Keyser and vicinity where he practiced for many years.

DR. L. A. PETTY

The death of Dr. Lawrence Arthur Petty occurred on September 14 at his home in Charleston, after a prolonged illness. He had retired from active practice two years ago. He was 52 years of age.

Dr. Petty was born in Middleport, Ohio, August 13, 1886. He was the son of O. A. Petty, former Kanawha county sheriff. He received his early education in Charleston public schools, Mt. Pleasant Military Academy at Ossining, N. Y., and was graduated from Center College, Danville, Ky. He received his medical degree from the University of Cincinnati, College of Medicine. Dr. Petty also was graduated from the Army Medical School.

He was a member of Kappa Alpha, social fraternity; Nu Sigma Nu, medical fraternity, and Alpha Omega Alpha, honor fraternity.

During the World War Dr. Petty was a captain in the medical department at Camp Zachary Taylor.

Woman's Auxiliary

KANAWHA

The first fall meeting of the Auxiliary to the Kanawha Medical Society was held on September 13, at one o'clock at the Charleston Woman's Club. Luncheon was served to forty members who were present and to the guest of honor, Dr. R. G. Leland, Director of the Bureau of Medical Economics, American Medical Association, Chicago.

Dr. Leland addressed the Auxiliary on the subject "Socialized Medicine." His talk was received with much enthusiasm and interest and furnished the members with many pointers for future discussions.

The report of the State Meeting was presented by Mrs. J. E. Rucker and accepted. A special group study of socialized medicine was proposed for Auxiliary consideration.

The next meeting of the Auxiliary will be held on October 11.

RUTH M. POLSUE,
Corresponding Secretary.

SALES TAX ON DRUGS

The following ruling and interpretation with respect to consumers' sales tax on the sale of drugs and medical supplies to physicians and dentists was released from the office of the state tax commissioner early in September.

The consumers' sales tax law imposes a tax of two per cent on the sale at retail of all tangible personal property. A "sale at retail," is defined by the statute as "any transaction by which the ownership of tangible personal property is transferred for a consideration, when the transfer is made in the ordinary course of the transferor's business and is made to the transferee for consumption or use or any other purpose save resale, without change or processing, in the form of tangible personal property."

The consumers' sales tax law, therefore, applies to the sale of drugs, supplies, x-ray films and other tangible personal property, to physicians, surgeons and dentists for use in their profession or for their personal use. The tax does not apply to the sale of drugs, supplies, etc., when sold in wholesale quantities and at wholesale prices to physicians, surgeons and dentists, for the purpose of resale to patients. In such case the tax will be collected from the ultimate consumer and reported to the state tax department.

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WALTER E. VEST
Editor
955 Fourth Ave.
Huntington, W. Va.

MR. JOE W. SAVAGE
Business Manager
Public Library Building
Charleston, W. Va.

ASSOCIATE EDITORS:
J. HOWARD ANDERSON
Hemphill, W. Va.
C. A. RAY
Charleston, W. Va.
C. R. OGDEN
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RECENT ADVANCES IN THE TREATMENT OF PNEUMONIA*

By D. A. MacGREGOR, M. D.
Wheeling, West Virginia

During the two decades just past we have witnessed many remarkable discoveries in the field of therapeutics, but none has been more gratifying and none has wider application than the developments in the treatment of pneumonia. This disease has a higher mortality than any other one of the infectious diseases. Only two other conditions, heart disease and accidents, have higher mortality rates. Furthermore, the number of deaths from pneumonia, not only in West Virginia, but in the whole United States has traced an irregular but gradually ascending curve in the past ten years. In West Virginia there were 1,631 deaths from pneumonia in 1927 and 2,063 in 1936. In the United States there were 87,230 deaths from pneumonia in 1927 and 119,378 in 1936. Only a few years ago when discussing this subject we devoted most of our attention to the details of good nursing care and proper methods of symptomatic treatment. We concerned ourselves with such subjects as the proper temperature and the ventilation of the sick room, the relief of tympanites, the administration of digitalis, and the use of oxygen. We followed in the footsteps of Osler, who said:

"It is a self-limited disease and runs its course uninfluenced in any way by medicine. It can be neither aborted, nor cut short by any known means at our disposal."

In these later years, we have come to a little better understanding of the subject. New and potent therapeutic weapons have been placed at our disposal. It is very important for us to learn how to use these weapons effectively. If we do use them intelligently and energetically, we can reduce by fifty per cent or more the mortality of this, the greatest scourge of the infectious diseases.

In the rational approach to the treatment of pneumonia, the first important step is an accurate bacteriological diagnosis. Physical diagnosis of the presence of the disease usually is easy. As a matter of fact, a diagnosis can be made from the history in most instances. Cough, fever, pleuritic pain, and rusty sputum

*From the Medical Division of the Wheeling Clinic. Read at the Seventy-First Annual Meeting of the West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

are convincing evidence of a serious inflammation in the lungs. We have come to the realization that pneumonia is a blanket term which covers a wide variety of acute pulmonary infections instead of being the name of a specific disease with two anatomical divisions, lobar and bronchopneumonia. The organisms found most frequently as a cause of pneumonia are: (1) influenza bacillus, (2) streptococcus, (3) staphylococcus, (4) Friedlander bacillus, and (5) most important of all, the thirty-two specific serological types of the pneumococcus. It is true that some type of pneumococcus is found in about 95 per cent of the cases of lobar pneumonia, but it is not essential to make a clean-cut differentiation between labor and bronchopneumonia in order to institute appropriate treatment. On the other hand, the bacteriological identification of the offending organism in either lobar or bronchopneumonia, is absolutely necessary for effective serum therapy.

ROENTGEN THERAPY

There are two methods of treating pneumonia to which I wish to refer briefly before entering upon the subject of serum therapy. They are: (1) treatment by x-ray, and (2) chemotherapy. X-ray has been used extensively in the treatment of various manifestations of inflammation, but the most striking success has been achieved in the treatment of carbuncles and streptococcic cellulitis. Within the last two years, Eugene V. Powell, of Temple, Texas, has reported a series of over one hundred cases of lobar pneumonia in which a reduction of mortality to approximately five per cent was accomplished by the use of x-ray and without the use of serum. In many of his reported cases the temperature dropped to practically normal within twenty-four to forty-eight hours and complete recovery followed in three to six days. He uses one or, if necessary, two fairly large doses, each of two hundred and fifty röentgen units, or approximately fifty per cent of the skin tolerance dose. Personally, I have had only a very limited experience with the use of x-ray in pneumonia, but the results I have seen were very satisfactory. In my own cases frequent small doses have been given and dramatic results have not been achieved, but in each instance the patients have experienced prompt relief of pleuritic pain and general discomfort. This point is emphasized in Dr. Powell's report. My most gratifying experience with x-ray in the treatment of pulmonary disease occurred in a case of pneumonitis, caused by a yeast infection, monilia, which will be reported elsewhere. For weeks this patient pursued a downhill course in spite of our best efforts. X-ray was tried as a last resort, and the patient was able to leave the hospital within a week after his first treatment. The response approached the miraculous.

It is too early for us to be sure of the proper valuation to be placed on x-ray in the treatment of pneumonia. I am convinced that it has a definite field of usefulness, but just how large that field is, must be determined by extensive trials. If it proves to be one half as satisfactory as the preliminary reports indicate, it will be of as great value as any other now known method of treatment. For my own part, I propose to make use of it in conjunction with other forms of treatment whenever the opportunity presents itself.

CHEMOTHERAPY

The treatment of pneumonia by x-ray and by type specific sera is cumbersome and requires a great deal of expensive equipment and highly specialized talent. In the interest of simplicity it is very desirable for us to discover some efficient chemical treatment comparable to quinine for malaria. Prior to the development of a specific serum for the Type I pneumococcus, the medical profession tried and abandoned innumerable drugs in the hope of finding one that would really cure pneumonia. The hopelessness of the therapeutic impasse was universally recognized.

Within the last two years a new drug, sulfanilamide, has flashed across the horizon with meteoric brilliance. We were startled to learn of its usefulness in the treatment of certain streptococcic infections such as puerperal fever. We were amazed to learn of its

successful use in other diseases such as gonorrhea and meningitis. Naturally, we hoped it would be found curative in pneumonia.

Certain laboratory experiments have indicated that it has a very limited field of usefulness in the treatment of experimental pneumonia. There is no evidence to support the belief that sulfanilamide will prove effective in the treatment of pneumonia generally, but it has been used with good results in certain cases in which a specific pneumococcus could not be isolated, and in which the streptococcus was probably the offending organism. In my personal experience I have seen two such cases in which the temperature dropped to normal within twenty-four hours after the institution of sulfanilamide treatment.

In the *American Journal of Medical Sciences* for June, 1937, Heintzelman reports nine cases of Type III pneumonia treated with sulfanilamide with only a 22 per cent mortality.

In the *New York State Journal of Medicine*, (October, 1937) Joseph Millett reported a case of Type III pneumonia successfully treated by the oral administration of sulfanilamide. The physical diagnosis was confirmed by x-ray. The temperature dropped to practically normal in less than thirty-six hours. In view of the fact that there is no potent serum available for Type III pneumonia, and that this type carries an extremely high mortality rate, further trial of sulfanilamide in such cases seems very desirable.

FURTHER TRIAL WARRANTED

No conclusion as to the merit or lack of merit of sulfanilamide in the treatment of pneumonia can be based on the meager information available, but the marvelous results obtained in other infectious diseases by the use of this drug and sporadic reports of its successful use in isolated cases of pneumonia warrant its further trial. Sulfanilamide may not be the drug we seek, but somewhere in the mysterious realm of chemistry, there should be a particular chemical formula, which will provide us with a specific cure for pneumonia. Until the time when such a drug is discovered, we must make the best possible use of the specific sera which can be produced in Nature's biological laboratories, the bloodstreams of the horse and rabbit.

SERUM THERAPY

In the *Pittsburgh Medical Bulletin*, for June 11, 1938, we find the following letter from the Medical Director of the Department of Health of the City of Pittsburgh:

"To the Editor:

"You will find attached a statistical report on lobar pneumonia for the year 1937.

"I will direct your special attention to the mortality rate of serum treated cases, which shows 18 per cent for those treated within 24 hours; 26 per cent for those in which serum was started on the second day; and 43 per cent in patients receiving serum on the third day of the disease.

"The death rate for non-serum treated cases is 47 per cent and in this group we, of course, include Type III, which has a mortality rate of close to 100 per cent.

"I bring these figures to your attention in order to impress upon the profession the necessity for beginning serum therapy at the earliest possible minute and also to show that there is some justification for our refusing to dispense serum after 72 hours.

"I. H. Alexander, M. D., Director."

The observations as set forth in this letter, based upon a critical analysis of the actual results obtained in the treatment of pneumonia by the medical profession in a large city of our neighboring state, offer us convincing evidence of the efficacy of serum treatment and the necessity for early administration.

In 1910, Neufeld and Handel in Germany demonstrated the fact that there are different types of pneumococci. Three fixed types, labeled I, II, and III, were definitely identified, and the remaining types were classified as Group IV. In 1929 Cooper and her associates succeeded in identifying twenty-nine different types in Group IV, which brought

the number of recognized types up to thirty-two.

The incidence of the various types of pneumonia is never the same in different years or in different localities, but a study of nearly 15,000 cases of pneumococcus lobar pneumonia, has given us the following percentage distribution:

Type I	33.3 per cent
Type II	20.8 per cent
Type III	10.4 per cent
All Higher Types	35.5 per cent

Specific sera for the treatment of Types I and II have been available for several years, and it is significant that these two types are responsible for over half of all cases of lobar pneumonia. A tremendous amount of time and energy has been devoted to the development of specific sera in our biological laboratories. We now have available sera derived from the horse for Types I, II, IV, V, VII, and VIII, which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Within the last year sera have been derived from the rabbit for all of the thirty-two different types, but as yet have not had extensive clinical trial. Furthermore, methods have been found for refining and concentrating the serum so as to render it more efficacious and safer to use. Fewer patients experience severe chills following the administration of the refined serum now available, but the complete elimination of the "chill substance" is one of the big problems confronting present day manufacturers.

BACTERIOLOGICAL IDENTIFICATION

In the serum treatment of pneumonia, the absolutely essential prerequisite is the bacteriological identification of the causative organism. Whether or not pneumococci are present must be determined, and if they are present, the type of pneumococcus must be identified. Several methods have been devised, but the Neufeld method has been adopted almost universally because of its speed, simplicity, and accuracy. It is based upon the observation that the capsule of the pneumococcus swells to about three times its normal size when it comes in contact with the specific antiserum prepared for the particular type of pneumococcus.

THE TEST

In order to perform the test, a fleck of sputum, a drop of methylene blue, and a drop of one of the diagnostic sera are mixed on a cover slip and observed under the microscope. If the pneumococci in the sputum are of the same type as the diagnostic serum, the capsules will show unmistakable swelling within a few minutes. If no swelling occurs, the pneumococci are of a different type, and the investigation is continued with other types of sera. In order to expedite the work, several tests may be carried on simultaneously with different sera or combinations of sera. In a properly equipped laboratory, an accurate type determination usually can be made within an hour. Since it is absolutely necessary to know the type before appropriate serum treatment can be instituted, and since the value of serum therapy diminishes with every hour of delay in its administration, it is imperative that adequate laboratory facilities should be made available at any hour of the day or night in all well-populated areas.

Nothing in the experience of any physician can be more dramatic, or more gratifying than the response of a patient who is very sick with lobar pneumonia to proper serum therapy. This new therapeutic agent places a very serious responsibility upon the shoulders of the practicing physician. He has no moral right to diagnose, prescribe, and say he will be back to see the patient the next day. It is incumbent upon the physician to remain on the case practically continuously, or to arrange for another physician to do so, until all the available facilities for adequate serum therapy have been exhausted or until the patient has shown a satisfactory response to treatment.

Lobar pneumonia is an emergency, just as serious as acute appendicitis and should be so treated. It can be treated in the home, but the appointments and personnel of a good

modern hospital permit of still better treatment. Formerly, I believed that it was not wise or safe to move a patient with pneumonia to a hospital. I think differently now. Modern ambulance service makes transportation easier and safer. The opportunity for better service to the patient in the hospital outweighs the inconvenience and possible risk.

TREATMENT

Having made a diagnosis of pnuemonia, what is the procedure which so urgently demands the personal attention of the physician during the next twenty-four hour period? Suppose we follow a hypothetical case through the various steps. After the physical diagnosis comes the determination of the type of pneumococcus with which we are dealing. Securing a good specimen of sputum may be easy, but sometimes sputum is scanty and the patient refuses to cough because of pleuritic pain. Under such circumstances, the chest may be strapped and a mild sedative given to relieve the pain after which a specimen may be obtained. Swabbing the fauces after coughing may be resorted to if no sputum is raised. The swab thus obtained may be cultured in blood broth for two hours and then one c.c. of the broth injected into the peritoneal cavity of a mouse. After six hours, typing can be carried out on the peritoneal fluid in the usual manner. Thoracentesis with direct aspiration from the affected lobe has been tried, but is too drastic a procedure for routine use. Fortunately, a satisfactory specimen usually can be obtained without much trouble and in our hypothetical case, we shall say that the sputum is found to contain Type I pneumococci.

Before beginning actual treatment with serum, it is imperative that we inquire into the patient's history with respect to asthma and the other allergic diseases, and to test the patient for sensitivity to horse serum by both the intradermal and the ophthalmic methods. If, after five minutes, there is no unfavorable response to either of the tests, the patient may be given a trial dose of one c.c. of Type I antipneumococcus serum intravenously. Fully two minutes should be consumed in giving the one c.c., and then, as always during the administration of serum, a syringe containing adrenalin should be at hand ready for use in case the patient should show evidence of anaphylactic shock. If the trial dose of one c.c. is well tolerated, the remainder (nine c.c.) of the first dose of 10,000 units may be given slowly. Subsequent doses of 20,000 to 40,000 units should be given at two to three hour intervals, and treatment should be continued until the pulse rate decreases, the temperature falls, and a marked improvement in the patient's condition is evident. In general, Types I, IV, and V respond more readily than Types II, VII, and VIII.

DOSAGE

For an adult under 30 years, a minimum dosage of about 60,000 units in the first 24 hours is recommended for Types I, IV, and V. About 50 per cent more is recommended for Types II, VII, and VIII. Other factors influence dosage. The older the patient, the larger the dosage required. Both the extent of lung involvement and the duration of the disease before the institution of treatment modify the dosage requirements. In the presence of a demonstrable bacteremia, we know that we are dealing with an extremely dangerous infection and the usual doses of serum should be doubled. Pneumonia complicating pregnancy also calls for maximum dosage.

Returning to our hypothetical case of Type I pneumonia, let us assume that we have given a total of 70,000 units, divided into four doses, at two to three hour intervals. The first dose was 10,000 units and the other three doses were 20,000 units each. Shortly after the third dose, the pulse began to slow down, and after the fourth dose, the temperature began to drop also. That is the most favorable response in an ideal case, but unfortunately, such a dramatic success cannot be anticipated in every case.

If the patient has not shown a satisfactory response within a few hours after the administration of an amount of serum, which we think should be adequate, it is possible to test

his reaction to treatment by a determination of the presence of agglutinins in his blood. If agglutinins are absent, we may be sure we are dealing with a bacteremia or an extremely virulent type of infection. Under such circumstances, it is necessary to resume the serum treatment with renewed vigor and continue until the blood responds with positive agglutination. Favorable reaction to serum therapy is indicated by the lowering of the pulse rate followed by a fall in temperature. On the other hand, a fall in temperature with an elevation in pulse rate is a grave omen. This condition is probably brought about by anoxemia. Under such circumstances, the lack of proper oxygen supply causes serious damage in the liver, brain, and myocardium. Further serum treatment will be of no avail, but a high concentration of oxygen may be helpful. Oxygen has a distinct field of usefulness as an adjuvant in the treatment of pneumonia. It is certainly indicated whenever there is cyanosis or other evidence of oxygen want, and it is certainly much more efficacious if given early before the acute signs of anoxemia develop.

SERUM IS EXPENSIVE

The serum treatment of pneumonia is expensive. An expenditure of over one hundred dollars may be required for the purchase at retail prices of the amount of serum required for one case. The proper administration of serum calls for expert laboratory assistance and the continuous attendance of a physician well qualified to supervise such treatment. It is pertinent to inquire whether or not the results obtained justify such an expenditure of money, time, and skill.

The available statistics are convincing. I have read you the report of the Health Commissioner of the City of Pittsburgh. Including all types of pneumonia, he gave a mortality rate of 47 per cent for those not treated with serum. On the other hand, he gave a mortality rate of 18 per cent for those who received serum treatment on the first day of the disease.

In addition to this, I would like to give the results in Types I and II of the Massachusetts Pneumonia Series as reported by Lord and Heffron. I think these figures are particularly appropriate because Types I and II comprise over 50 per cent of all pneumonia cases, because the sera for these types have been in use for a number of years, and because the cases reported were handled by over 1000 different physicians, scattered over the state of Massachusetts. In Type I pneumonia the mortality rate for those treated with serum within 98 hours of the onset was 13.9 per cent, and for those not treated with serum, (cases collected from the literature) it was 30 per cent. In Type II pneumonia the mortality for those treated with serum within 96 hours was 22.4 per cent, and for those not receiving serum, 42.9 per cent.

SPECTACULAR RESULT REPORTED

The most spectacular result in a larger series of Type I pneumonia cases has been reported by Cole, from the Rockefeller Institute, who obtained a mortality rate of 4.8 per cent for those treated in the first three days. Cecil's report of 160 Type I cases treated with specific serum within twenty-four hours of the onset is almost as impressive as Cole's report. Cecil reports only eight deaths out of the 160 cases, or a mortality of 5.0 per cent.

The serum treatment of pneumonia is now receiving widespread recognition. Surgeon General Parran considers his plan for pneumonia control next in importance to his campaign against syphilis. There is universal interest among public health officials in the development of state-wide programs for pneumonia control. In many states, campaigns of education for doctors and special training courses for laboratory technicians, are being sponsored by the state health departments. In only a few of the states has there been any definite progress towards obtaining a provision for the free distribution of serum to indigents.

Massachusetts operates its own biological laboratories and makes serum for six different

types of pneumonia. This serum is distributed through 80 approved typing stations, scattered over the state. The results of the pneumonia campaign in Massachusetts have been so outstanding as to attract world-wide attention.

In Connecticut, through the aid of Federal Social Security funds, $15,000 was invested last year in serum for Types I, II, IV, V, VII, and VIII.

A pretentious program was instituted last year in New York state, where $400,000 was appropriated for pneumonia control. This money is being used for the manufacture of sera, for the establishment of a chain of state-approved typing stations, and for an intensive campaign among the physicians of the state to encourage them to have all pneumonia cases typed early and treated with an appropriate serum. The state distributes the serum which it manufactures free of charge to patients unable to purchase it.

In Pennsylvania some $60,000 of Federal Security funds have been used for the purchase of serum for free distribution, and the City of Pittsburgh has appropriated an additional $25,000 for local use.

Ohio has appropriated money for the training of laboratory technicians and has made arrangements for securing about $25,000 for the purchase of serum for free distribution.

A few other states have taken steps toward inaugurating some form of pneumonia campaign, but so far most of the practical accomplishments have been confined to the northeastern states.

NO FREE SERUM AVAILABLE

In our own state there is no place, so far as I know, where persons who are unable to pay can obtain serum free of charge. The State Health Department has the subject under consideration and has discussed the same with the Advisory Committee of the Department of Public Assistance. Probably a scheme will be devised for setting up approved stations where typing can be done and serum distributed under the auspices of the Department of Public Assistance. Our state is lagging behind in this great and important work. Of course, we have plenty of company. I sincerely hope that in the very near future we shall take our rightful place among the other states and have a pneumonia control program of which we can be proud.

SUMMARY

Recapitulating this paper, I would like to emphasize the following points:

(1) X-ray therapy of pneumonia gives great promise of being an important method of treatment. It should be tried extensively so that we may appraise it properly. X-ray usually gives prompt relief of pleuritic pain.

(2) In cases of streptococcus pneumonia, Type III pneumonia, and other unclassified pneumonias, sulfanilamide has been found useful in a few instances. It deserves further investigation.

(3) The treatment of pneumonia with specific sera is well-established.

(4) Accurate typing at the earliest possible hour, day or night, is essential.

(5) The prompt administration of adequate dosage of serum should be instituted immediately after type determination because every hour of delay means a higher death rate.

(6) Diagnostic laboratories where accurate typing facilities are available, day and night, should be established at strategic points. They should be approved and supervised by the State Health Department.

(7) If possible, funds should be secured for the free distribution of serum, not only to indigents, but also to those in the low income brackets for whom the high cost of large doses of specific serum would be a hardship.

DISCUSSION

Dr. A. R. K. Matthews, Parkersburg: Dr. MacGregor has given us a splendid presentation of the newer developments in the treatment of pneumonia.

In my order I would put the specific type antipneumococcic serum, secondly the roentgen ray, and third the sulfanilamide chemotherapy for beta-hemolytic streptococcus infection. As he said, you cannot get anywhere unless you have an accurate bacteriological picture of your case. I think that is the reason I was asked to discuss this paper, because I am not a therapeutist. I am one of those hetero-

genous gentlemen called a pathologist, and the bacteriological workup in these cases has come under our department.

In Parkersburg we have been, I think, pretty much up to date with our methods. In our routine hospital cases we do get a good specimen of sputum. It may be hard to do that. Sometimes patients will not cough, but we try to get sputum with a swab, using a laryngoscope if necessary. The first thing we do is to make smears and try to tell which is the predominating organism, whether streptococcus or pneumococcus. At the same time we look for the presence of tubercle bacillus or any other organism which may be present. If there is still some doubt whether it is a streptococcus or pneumococcus, we use the bile solubility test, which does not take very long to do and works very well.

For confirmation we do a culture on blood agar and the next day we can tell whether we have a hemolytic streptococcus or not. Then we do the Neufeld type test, which works very well. Dr. MacGregor has described it to you. My technicians are able to do it and to interpret it. Nevertheless, I think this is a type of work where technicians meet problems that they cannot always cope with and they need expert assistance.

We also recommend blood cultures. We do not always get them, but we should do blood cultures daily on these patients. You may find the organism that way when you cannot find it any other way.

Sometimes you find two types of pneumococcus in the sputum if you have a positive blood culture.

Speaking from personal experience I think every doctor in Parkersburg is convinced of the value of the specific serum. We have had one speaker here today who is a living example of the success of Type III antipneumococcic serum. With regard to sulfanilamide we have had some favorable results particularly when it is confined to the hemolytic streptococcus.

I know of four cases that were treated by x-ray and all recovered. We have one case that has been treated now that started out with yeast infection, complicated with hemolytic streptococcus, and did not do very well under sulfanilamide, but is doing first rate with x-ray therapy.

In conclusion, I think if your community is not able to give this type of service, it is unfortunate, because today the public is entitled to get such help from the medical profession and if there is any way in which this state or any organization can make it available I think it should be done.

Dr. W. L. Cooke, Charleston: I should like to present some of the statistics from the Charleston General Hospital. This study was based on the cases of lobar pneumonia for the year 1936 and 1937. The only reason I present them is to emphasize the importance of being familiar with the specificity of these different sera so that we can intelligently use the treatment.

In 1936 we had 96 cases of lobar pneumonia with 26 deaths, a mortality of 27 per cent. In 1937 there were 107 cases with 30 deaths, 28 per cent, a total of 203 cases with 56 deaths or 27.6 per cent.

These cases were confirmed by x-ray in 179 cases. The number of cases we attempted to type in 1936 was only 31 in 96 cases, or 32 per cent. In 1937, we apparently had become more type conscious and had typed 67 cases in a total of 107, or nearly twice as many, 63 per cent.

Of these 96 cases there were only 19 in 1936 that were treated with serum, with six deaths; and 17 in 1937 that were treated with serum, with five deaths.

Eliminating those cases which were not specific at the time, we have 13 Type I with four deaths (these were the serum treated cases) eight Type II with three deaths, two Type V with no deaths, three Type VII with one death, or eight deaths out of 26 cases.

I think the biggest thing that we can get from this short survey is the fact that of the 27 doctors who had these cases at the Charleston General Hospital, there were certainly a number of them who did not understand serum treatment.

Dr. A. S. Brady, Jr., Charleston: I disagree on the expense of serum treatment. In New York City is has been found by the Indigent Board that the cost of hospitalization is materially reduced by the use of serum and even in private hospitals the cost of using serum in adequate dosage is less than that ordinarily found in cases which were not serum treated.

Dr. Walter E. Vest, Huntington: Dr. MacGregor made two points that I want to discuss. One is that if you are going to transport a patient with pneumonia he ought not to be transported too great a distance. I am more and more convinced that we do a lot of these severe pneumonia patients harm if we undertake to transport them a long distance to a hospital.

Dr. MacGregor mentioned lung puncture for specimen for diagnosis. I think that is a practice that ought to be condemned. I doubt the wisdom of it, and have doubted it ever since our experience in the World War when we had so much pneumonia in the winter of 1917-1918.

Dr. G. H. Barksdale, Charleston: There are two points that I should like to make. The first is that in my extensive series of treatment of Type III, which consists of one case in which sulfanilamide was given, the response was so brilliant and so dramatic that I had reasons to feel that the drug did act specifically in this one single case.

The other point that I think should be emphasized is that the ultrascientific handling of these cases should not be overemphasized. Scientifically I am sure that everything that is said, such as lung puncture and serum typing, is eminently scientific and eminently necessary; however, we must not lose sight of the fact that 58 per cent of our pneumonias fall under Types I and II.

I believe undoubtedly that the successful treatment of diabetes by means of insulin was retarded years because it fell into the hands of ultrascientists who overemphasized the potency of insulin, and many men were afraid to tamper with it.

Dr. O. B. Biern, Huntington: I want to ask Dr. MacGregor if it is a disadvantage to begin treatment with the use of an oxygen tent rather than waiting until all other things have been tried. I see no reason why the patient could not be placed immediately under an oxygen tent rather than waiting until he gets anoxemia.

Dr. W. V. Wilkerson, Highcoal: There is one point on which my own individual experience is at variance with Dr. MacGregor's. That is the question of transportation. In most instances the picture is somewhat confused by the fact that the man treating the patient in the hospital has one series, the family doctor has another series, each one reports his own cases and neither one knows exactly whether the hospital was responsible or whether the physician was responsible or whether transportation was responsible.

It happens that for a period of years from 1930 to 1935 I was in the peculiar position of treating patients in the home and also in the hospital. During that period of time in one year I had 115 cases in the hospital and a smaller but comparable series in the home. In this series, the mortality rate at the hospital was 24 per cent, the mortality of all the patients treated at home was eight per cent. I think that is certainly significant enough to justify some thought.

Dr. D. A. MacGregor: I will not take the time to go into the various points that have been brought up except to speak specifically to Dr. Biern's question about the oxygen tent. I see no objection to starting oxygen therapy early. Perhaps it is not needed at the outset. It certainly is needed later on. There is no objection to starting it a little before it is needed.

As for home and hospital treatment, that matter is settled by the conditions in the particular community under which the physician works and the ease with which a patient can be transported to the hospital. We all see eye to eye on this subject. We would like to leave our pneumonia cases right in bed where we find them. If it is necessary to send them to a hospital for good diagnostic work, for x-ray treatment, or expert laboratory service, we hope that the trip will be short and the ambulance convenience all that is required.

THORACOPLASTY

No one should consent to thoracoplasty with the expectation that the operation will be complete in one stage, declares Dr. B. P. Potter in the seventh article of his series on "Tuberculosis Up to Date" which appears in the October issue of *Hygeia*.

During thoracoplasty, the tuberculous patient often has from one to several ribs removed in order to effect a collapse of the lung cavity, necessary to his recovery from tuberculosis.

In the vast majority of cases two and often three stages are necessary, for the operation should be planned so that sufficient number and length of ribs which overlay the cavity will be removed and that their removal will be done in several stages.

The number of ribs to be removed cannot always be accurately estimated before operation. While before operation the lower limits of the cavity may be covered by the sixth rib, the picture changes after the operation, when the partly collapsed lung drops toward the heart and downward. It may be then found that the cavity has dropped one or two spaces lower, so that finally the number of ribs to be removed will be greater than estimated before operation.

STATISTICS ON LOBAR PNEUMONIA, FROM A WEST VIRGINIA HOSPITAL

By W. L. COOKE, M. D.
Charleston, West Virginia

With the renewed zeal in the treatment of lobar pneumonia occasioned by the more prevalent use of antipneumococcic serum, it is thought it might be of interest to review the cases of lobar pneumonia treated at the Charleston General Hospital during 1936 and 1937. A series of 203 cases is reported. The diagnoses rest essentially upon history and physical findings, although there was x-ray confirmation in 179 cases.

In 1936 there were ninety-six cases of lobar pneumonia with twenty-six deaths, a mortality of twenty-seven per cent; in 1937, there were one hundred and seven cases with thirty deaths, or a mortality of twenty-eight per cent. This survey does not include cases diagnosed as having bronchopneumonia.

TABLE 1—MORTALITY

	Cases	Deaths	Mortality
1936	96	26	27%
1937	107	30	28%
Total	203	56	27.6%

There were fifty-six private cases with twenty deaths, a mortality of thirty-six per cent; 139 contract patients, with thirty-two deaths and a twenty-three per cent mortality, and, eight charity cases with four deaths, a fifty per cent mortality.

TABLE 2—ECONOMIC STATUS

Private	56	20	36%
List	139	32	23%
Charity	8	4	50%

Regarding sex, there were nearly twice as many males—125 against 78 females. The mortality was also higher among males, being 30 per cent, as compared to 22 per cent for females.

TABLE 3—SEX

	Cases	Deaths	Mortality
Males	125	38	30%
Females	78	18	22%

As expected, negroes showed a much higher mortality; 60 per cent, as compared to 22 per cent for members of the white race.

TABLE 4—RACE

	Cases	Deaths	Mortality
Negroes	31	18	60%
White	172	38	22%

Of particular interest was the age grouping. The ages were classified arbitrarily into five groups, roughly approximating fifteen-year spans of life. Because the pediatric service takes care of children up to twelve, this was used as the first age group. We had 52 pediatric cases of lobar pneumonia with two deaths, a surprisingly low mortality of less than four per cent. From the age of 12, including 25, the mortality was 20 per cent; from 26 to 40, 39 per cent; from 41 to 55, 39 per cent; from 56 to 69, 57 per cent, and over 70, 50 per cent.

TABLE 5—AGE

Age	Per cent of Total cases	No. of Cases	Deaths	Mortality
Under 12	25	52	2	4%
12-25	20	41	8	20%
26-40	29	57	22	39%
41-55	15	31	12	39%
56-69	7	14	8	57%
Over 70	2	4	2	50%
Unknown	2	4	2	50%

Plotted on the calendar, our cases follow very closely the expected seasonal variation, beginning to show an increase in November to the peak of winter and early spring without much let down until June. Twenty-five cases were reported in May during the two years, but there was only a 12 per cent mortality, compared to over 30 per cent mortality from December through April. Only 10 per cent of the total number of cases occurred during the five months from June through October.

TABLE 6—SEASONS

	Jan.	Feb.	Mar.	Apr.	May	June
Cases	24	33	25	37	25	4
Deaths	7	12	7	12	3	1
Mortality	29%	36%	28%	32%	12%	25%

	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cases	1	9	1	8	17	19
Deaths	0	4	0	1	4	5
Mortality	0	44%	0	12%	24%	26%

Effort was made to correlate the physical findings and the mortality without much success. There seemed to be no particular relation between the elevation of pulse and temperature to mortality, and blood pressure readings were not recorded frequently enough to test the old adage: "The prognosis is good, if the systolic blood pressure continues to exceed the pulse rate." These factors are too variable to evaluate from the available records. Fifty-five of the patients had typical crises. Ninety-one resolved by lysis, a ratio of about five to eight. (The remaining cases are the deaths plus one case who left the hospital against advice.)

TABLE 7—MODE OF RESOLUTION

Crisis	55	38%
Lysis	91	62%
Deaths	56	
Unaccounted	1	

There was two and one-half times more right-sided pneumonias than left-sided, and only seven cases were admitted with bilateral involvement. Notations were insufficient to determine to what extent the process eventually spread, but the mortality was definitely greater in cases where more than one lobe was involved on admission, being 46 per cent, as compared to 22 per cent when the process was limited to one lobe. There was also a slight increase in mortality in patients who had the consolidation on the left side.

TABLE 8—LOBE INVOLVED

	Cases	Deaths	
Right lung	139	36	26%
Left lung	56	17	30%
Bilateral	7	3	43%
Unknown	1	0	
More than one lobe	61	27	44%
One lobe only	141	29	21%

The leucocyte counts were checked with the idea of determining the accuracy of the theory of a low blood count offering a poor prognosis. The cases were divided into those with white blood counts over 15,000, and those with white blood counts under 15,000. Of those on whom blood counts were made, 74 per cent had counts over 15,000, and 26 per cent had counts under 15,000. Considering only those cases which expired, we find 59 per cent with high counts, and 41 per cent with low counts. On the other hand, among the patients who recovered, there were only 20 per cent with low white blood counts. This difference is practically 100 per cent and would seem to bear out the statement that a low leucocyte count is a grave sign.

TABLE 9—LEUCOCYTE COUNT

	WBC Over 15,000	WBC Under 15,000	WBC Not Done
Total cases	139	49	15
Per cent	74%	26%	
Cases Recovering	109	28	10
Per cent	80%	20%	
Cases dying	30	21	5
Per cent	59%	41%	

Several years ago we had a seemingly large percentage of positive blood Kline reports in the cases of lobar pneumonia which was attributed to a disturbance in the agglutination from severe toxemia. Computation revealed that out of 138 patients on whom Klines were recorded, 21 per cent showed some reaction; 11 per cent giving a four plus reaction; six per cent giving three plus reaction; and four per cent giving two plus reaction. In all cases with positive Kline reactions, we have lately adopted the routine of checking with a Wassermann, and found that approximately one-half of those with some reaction to the Kline are negative to the Wassermann reaction. Particularly is this true in cases giving only two or three plus Klines. One hundred and nine cases (79 per cent of the entire series), gave negative Kline readings. Thirty-four, or 31 per cent of this group died. Twenty-nine cases, or 21 per cent of the entire series, gave positive Kline reactions. Of this reacting group, 12 cases, or 41 per cent died.

TABLE 10—KLINE REACTIONS

	Negative	2 Plus	3 Plus	4 Plus
Klines	109	6	8	15
Per cent	79%	4%	6%	11%
Mortality	34	2	3	7
	31%		41%	

In 1936, only 31 out of a total of 96 patients, or 32 per cent, had sputum typing attempted; while in 1937, 67 of 107 cases were typed—the percentage doubling to 63, and indicating definite development of serum

TABLE 11—TYPING ATTEMPTED

	1936	1937
Total cases	96	107
No cases typing attempted	31	67
Per cent typing attempted	32%	63%

interest. In the 98 attempted typings, only 64 sputa could be classed in types i to viii, as high as the typing was run during the period covered. These 64 sputa were divided as follows:

TABLE 12—TYPES FOUND

Type	Cases	Per cent of Total	Deaths	Mortality
i	25	38%	10	40%
ii	13	21%	3	23%
iii	4	6%	2	50%
iv	7	11%	4	57%
v	5	8%	2	40%
vi	0	0	0	0
vii	7	11%	2	29%
viii	3	5%	1	33%

It is seen that type i is by far the largest percentage of those cases typed, followed by type ii. The mortality varies from 23 per cent for type ii to 57 per cent for type iv in those cases for which a type was found. It is of course impractical to compare this small series with the mortality in large series of typed cases.

The number of cases in which antipneumococcic serum was used therapeutically, was about the same each year; nineteen in 1936, and seventeen in 1937. When the serum was first used, we had difficulty in getting immediate typing done, and as type i and ii were the only available sera, several cases were given serum before being definitely typed. Five were treated thus in 1936, with one death; but in 1937, only one untyped case was given serum, and it died. Even after

TABLE 13—ALL CASES SERUM TREATED

Type	1936 Total	1936 Deaths	1937 Total	1937 Deaths
i	4	2	9	2
ii	5	2	3	1
iii	1	0	—	—
iv	2	1	—	—
v	—	—	2	0
vi	—	—	—	—
vii	1	0	2	1
viii	1	0	—	—
0	5	1	1	1
	19	6	17	5

typing was made more readily available by better organization in the laboratory, there seemed to be some confusion among the clinicians, for it is noted in 1936, that four cases were given serum in types for which sera were not available at that time. Eliminating these cases, we have thirteen cases of type i treated with serum, with four deaths; eight cases of type ii with three deaths; two cases of type v with recovery, and three type vii with one death. The amount of serum used, varied from 10,000 to 100,000 units, all being given intravenously except in one case. The notations regarding brands were not available.

TABLE 14—CASES TREATED WITH SPECIFIC SERA

Type	Total	Deaths
i	13	4
ii	8	3
v	2	0
vii	3	1
	26	8

The eight deaths occurring in types for which sera were available warrant comment. All type ii cases that died were three or more days old when given serum. The mortality following treatment with type vii serum, occurred in a patient having an old healed tuberculosis in addition to her pneumococcic infection. All four cases dying after type i serum therapy were early cases of not more than 48 hours duration; one was a post-cesarean section and one was over 70 years old. Eight patients out of 36 receiving serum had reactions; four being collapse reactions, and four anaphylactoid reactions in the form of hives or painful joints. One of these patients expired—a 70 year old patient of mine who was moribund and died two and one-half hours after serum administration.

Forty-two patients received oxygen therapy, exactly 50 per cent of whom expired.

Empyema occurred in seven cases with no deaths, and otitis media in eight cases with no deaths. Four cases developed pleural effusions large enough to aspirate, one case expiring. One case each of encephalitis and lung abscess recovered. One case each of cerebral embolism, multiple abscess with empyema, and atelectasis were reported as mortalities. Three cases occurred in pregnancy, one dying. The only diabetic recorded was a mortality.

The average stay in the hospital of patients recovering from pneumonia was 15 days, during which time all immediate complications

were treated. The cases which expired averaged four and one-half hospital days, 11 expiring within 24 hours.

COMMENT

The mortality as reported early in the paper is open to criticism, as the cases on the pediatric service are included. Excluding these children under 12, we find an adult mortality of 54 in 151 cases, or 36 per cent. Excluding the 24 hour deaths, the adult mortality is 30 per cent—43 deaths in 140 cases.

It would appear that the use of serum is at best poorly comprehended by a large number of the 27 doctors whose cases are represented in this series; but, that there was marked improvement in attention to typing of sputum in 1937 as compared to 1936. To be able to start serum early, pneumonia must be considered as much of an emergency as acute appendicitis.

To summarize: It would seem that the poorest prognosis for a patient with lobar pneumonia in this series would be given in a negro male between 56 and 69, who entered the hospital as a charity case in February or April, had a leucocyte count under 15,000, with consolidation of both lobes of the left lung, some agglutination to the Kline antigen, and a type iv infection.

404 Brooks Street.

THE ART OF DIAGNOSIS*

By JOHN C. GITTINGS, M. D.
Philadelphia, Pennsylvania

MEDICAL education has always stressed the importance of diagnosis and the development of medicine has introduced many laboratory procedures which have greatly increased accuracy in diagnosis. On the other hand, laboratory data *per se* are not always conclusive and there is still need for physicians to develop the art of evaluation and differentiation. Too great reliance on laboratory reports tends at times to a premature and unwarranted crystallization of ideas and to oversimplification of those processes of thought which alone can lead to correct decisions.

This must not be interpreted as an attempt to decry the value of laboratory procedures. Ofttimes they are indispensable — notably serological and bacteriological studies, hemograms, urinalyses, electrocardiograms, blood chemical and basal metabolism determinations. It is necessary, however, for us not to lose perspective and laboratory reports should be utilized as a means to an end—not always or merely as the end itself.

Purposely röentgenograms are omitted from the list. They are very often essential and in reality represent a great amplification of our powers of inspection. The correct interpretation of röentgenograms also calls for clinical as well as technical experience.

To employ a variety of laboratory tests merely because they are available works a definite hardship on patients, and hospital internes so trained are liable to form lax and careless habits of clinical examination and fail to develop their powers of deduction and reasoning. When they emerge as practitioners, they are apt to find themselves seriously handicapped because of their inability to diagnose without being supplied with a mass of laboratory information. The latter, obviously, costs money, and in fact, it is this cost which in reality forms the basis for the "high cost of medical care", of which we hear so much from the laity.

To a consultant, instances occur not so rarely where a practicing physician has allowed himself to be stampeded into an incorrect diagnosis, and has thereby worked an

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injustice to himself which could have been avoided had he taken greater care in reaching a conclusion.

If it were possible to analyze the underlying factors which make or break a successful medical career, the chief component of the formula for continued success probably would prove to be diagnostic acumen, rather than a perfect bedside manner. The latter will carry a physician far in certain special types of practice, but unless there is something of value on the shelves behind the showcase, the latter exhibit may not suffice.

In developing the subject, let us first consider some standard diagnostic rules, illustrated with pertinent examples from my own experience. Certain diagnostic difficulties and mistakes may then be demonstrated by actual case histories.

DIAGNOSTIC APHORISMS

(1) Many more mistakes in diagnosis are made because of carelessness and haste than because of lack of knowledge.

(2) The history must be elicited with meticulous care so as to show the development of the abnormal or diseased condition from its incipiency. This is particularly true in pediatric practice because so often we lack an adequate statement of subjective symptoms.

(3) Take nothing for granted. You may hear that Dr. X has examined your patient shortly before and had found nothing wrong with the throat. No matter how capable Dr. X may be, acquire your information first hand. Dr. X may have been in too great a hurry to cope adequately with a recalcitrant child—and a thorough examination under these conditions is none too easy.

(4) Make the physical examination complete, with the clothes removed—in sections if the room is cold. For example, a physician in a hurry may use a stethoscope on the front of a bared chest and finish by listening to the back through the clothes, thereby missing a patch of pneumonia in a lower lobe.

(5) A disease and a diagnosis can be likened to a portrait and a frame. The portrait comes first and the frame must fit it. At times we find ourselves selecting a handsome diagnostic frame and then trying to squeeze a disease portrait into it. Unless the diagnosis covers the essential picture of the disease in question and furnishes a satisfactory explanation of symptoms, a mistake has probably been made.

(6) In many instances a key symptom is present which clearly points to a correct diagnosis, and yet subsiding or unimportant symptoms may lead us off the track. For example, a child suffers an attack of acute diarrhea with severe abdominal pain, in August. Fever is moderate, the diarrhea lessens and by the fourth day the stools do not show the characteristics of dysentery, although the pain persists. The child is completely spoiled so that adequate examination is impossible. Apparently there is some abdominal tenderness but nothing definite can be determined. Finally, on the fifth day, when the child is seen in the evening, half asleep and thereby relaxed, a mass is felt at McBurney's point. The key symptom was pain, not diarrhea.

(7) Remember the factor of probability. In case of doubt where accurate distinction between two diagnoses is impossible, the chances are that the more common of the two diseases is the one at issue. For example, an infant of six months is seen because of lassitude, drowsiness and moderate fever of three days' duration. There are no definite physical signs except very slight rigidity of the neck. The probable diagnosis rests between encephalitis and tuberculous meningitis. The former has not been epidemic and there is no history of exposure to tuberculosis. Even a lumbar puncture may not be conclusive at this stage. Since we do not possess any specific remedy for either disease, there is no need to reach a final conclusion at once, but the greater likelihood of tuberculous meningitis as contrasted with encephalitis, warrants a tentative conclusion in favor of the former.

(8) When a satisfactory diagnosis has been reached it is comforting to remember that diseases usually are single and merely the complications and sequelæ of that type of disease are the things to be feared. However, a diagnosis is never closed. Anything may happen. A cautious physician is not liable to be caught napping. A self-satisfied one will live to regret his lack of care.

Numerous other incidents could be cited to demonstrate the importance of such rules. For example, as to the importance of the history. A child is seen with atypical signs in the chest. The onset of the disease apparently had been gradual, with fever first appearing three days before. Careful questioning discloses that a slight cough preceded the fever by four days, to which no attention was paid. Further questioning as to the conditions at the time the cough first developed brings the recollection that the child had been eating peanut brittle. Four weeks later a portion of peanut was removed from the right bronchus. This child had gone through a serious and trying illness which could easily have been prevented by greater care in eliciting the history.

Figure 1: Case 1. April 9, 1927, ten months after onset. Pneumonitis, abscess and cavitation upper part right low lobe with paracardiac atelectasis.

To illustrate the necessity of fitting the frame to the picture; a boy of seven years is seen with the following history: In November, he contracted scarlet fever but before he was released from quarantine he developed a head cold with purulent nasal discharge. This continued, with intermittent fever, for eight days when the left eyelid became red and swollen and headache occurred. A diagnosis of ethmoiditis was made. In four days, the swelling subsided but headache continued. Examination at this time was negative except for a residual ethmoiditis, confirmed by x-rays. Examination of the eyes showed hyperopia and slight blurring of left disc, probably pseudoneuritis. The urine, blood count and Wassermann tests were negative. During the next week, fever was inconsiderable, nasal discharge had ceased, the initial headache had diminished but kept recurring. Suddenly the headache became very severe, with slow pulse, and drowsiness. Operation disclosed abscess of left frontal lobe. In this case, the symptoms of ethmoiditis were un-

Figure 2: Case 1. April 27, 1927. Empyema.

doubted but after the periorbital swelling had subsided four days later, there was no reason to expect headache to persist solely as a result of a subsiding ethmoiditis. In other words, the diagnosis of ethmoiditis failed to cover the symptomatic picture of persistent headache.

DATA MISLEADING

To illustrate instances where laboratory data may be misleading: An eighteen year old girl develops an attack of scarlet fever. There is moderate angina without membrane and a fairly typical scarlatinaform rash on the trunk; the tongue is somewhat red but the papillæ are not prominent. The face is flushed and the pulse rapid. There has been nausea but no vomiting. The leucocyte count is 9,500, with a differential of 55 neutrophiles and 37 lymphocytes. The attending physician is convinced that a leucocytosis always accompanies scarlet fever and, therefore, is unwilling to concede that diagnosis, although scarlet fever is epidemic.

Again, a girl of three years develops sudden fever and vomiting. The pharynx is slightly red, but because the child resists excessively and the parents are oversympathetic, a careful examination of the throat is not made. A urine specimen, centrifuged, contains 10 pus cells per high powered field and a diagnosis of pyelitis is made. In four days, the temperature is normal and a cure of pyelitis is credited to the use of urotropin. No other urine examination is made.

As a matter of fact, a true pyelitis rarely recovers in four days, unless it be due to a hemolytic streptococcus and is treated with sulphanilamide. The most important factor is that 10 pus cells per high powered field in the urine of a girl are of no significance unless great care has been taken to cleanse the urinary meatus. Likewise, it is inconceivable that any severe infection of the kidney or pelvis would exist for any length of time with only 10 cells being found per field. Before a diagnosis of pyelitis is justified, repeated examinations should be done, and they can hardly fail to show an increasing pyuria.

The diagnosis of pyelitis in a girl often warrants a catheterized urine specimen and culture. The technique must be perfect, both to prevent possible infection of the bladder and to secure a bona fide culture. The finding of colon bacilli unless there is a pronounced pyuria, may merely evidence a contaminant, and I have seen a diagnosis made of colon bacillus pyelitis with only five pus cells per field in the urine. This is a prime example of relying upon a misleading laboratory report, although, of course, the laboratory was not to blame. The correct diagnosis in the case described was nasopharyngitis and it was overlooked because the throat was not properly examined.

Another example of overreliance upon laboratory reports may be seen in typhoid fever. On the tenth day of a fairly typical attack, the laboratory may report a negative agglutination test. To some young physicians who have learned to lean too heavily upon these technical aids, this is disconcerting. A few atypical roseolar spots have been seen; and a trained clinician, who has made a careful differential diagnosis of typhoid fever with reservations that certain improbable diseases such as miliary tuberculosis must not be forgotten, will nevertheless stand his ground. At the end of the second week, the Widal is found to be positive. As a matter of fact, the earliest laboratory proof of typhoid fever is a positive blood culture and a positive Widal reaction may not be obtained until the third week, or even later, in a case which is destined to relapse.

CYCLIC VOMITING

A boy of four years, two days after overindulgence in chocolate Easter eggs, began to vomit. This continued at intervals for forty-eight hours. When seen in consultation, he had not vomited for six hours, the pulse was 160. The temperature was normal, mind clear, the urine contained a trace of albumin, many hyaline, a few granular casts and two plus acetone. His tissues were slightly dehydrated. The history showed that he had always been healthy but had had a causeless

vomiting attack ten months ago; on account of the urinary findings the physician had diagnosed acute nephritis and the family had consequently been greatly worried.

Absence of red blood cells in the urine, only a trace of albumin, dehydration rather than edema, persistent vomiting with a clear sensorium, normal temperature, absence of headache and oliguria negatived the presence of glomerular nephritis. The diagnosis obviously was so-called "cyclic vomiting."

Since the introduction of the test for blood sedimentation rate, there is a tendency to attach undue importance to a positive result. While this is seen almost invariably in acute rheumatic infection, the test also may be positive in almost any febrile disease and in

Figure 3: Case 1. February 4, 1938. Eleven years, eight months after onset. Slight residual fibrosis and trachea retracted toward spine.

anemia. A negative sedimentation test, however, is definitely useful, although not absolutely conclusive, in ruling out rheumatic infection. In much the same way, a positive tuberculin test *per se* means infection but gives no proof of active clinical tuberculous disease, while a negative test almost rules out the presence of tuberculosis if a large dose of tuberculin has been used.

As a sample of a somewhat confusing picture, wherein it was necessary to disassociate previously existing from recently acquired disease, and wherein a satisfactory diagnosis could be made without any laboratory aid whatever, except a routine urine examination, the following may be cited.

A two year old colored boy was seen with the following history. He had been subject

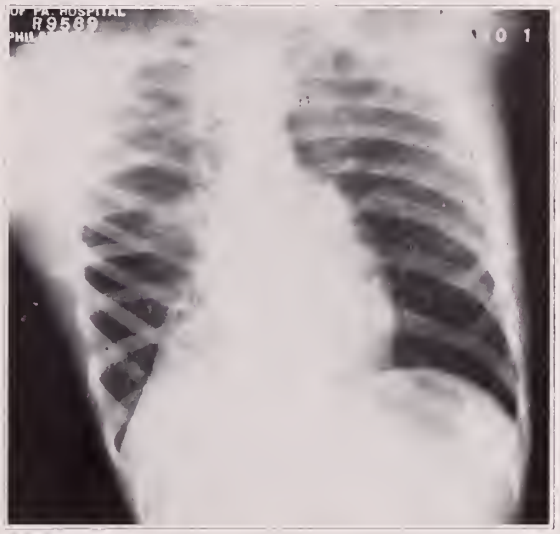

Figure 4: Case 3. October 1, 1931, six weeks after onset. Triangular paracardiac atelectasis with slight displacement of heart to right.

to colds and had had pneumonia at one year of age. The birth history and family history were negative and development had not been essentially retarded. Economic and hygienic conditions in the home were satisfactory. There had been no known exposure to contagion.

The present attack began four days before with severe abdominal pain, moderate fever, 102° F., cough, vomiting of practically all food, although water had been taken freely; four or five loose rather foul-smelling bowel movements had been passed every 24 hours. The child cried a great deal, presumably from pain. (A child will cry from discomfort but this will not persist unless pain be added. Marked tendency to crying carries a definite implication. Mere fretfulness, on the other hand, is occasioned by a host of causes.)

Examination showed a nontoxic child, with slight evidence of former rickets, and moderate malnutrition; bronchitis but no evidence of consolidation; throat slightly red, and bulging of both ear drums. The abdomen was distended and quite rigid. Peristaltic sounds were active, and there was no evidence of free fluid. There was slight prominence and some rigidity at the dorsolumbar junction of the spine but no neurological signs of meningitis presented.

THE DIAGNOSIS

In making a diagnosis, it was necessary to consider:

(1) Substructure; late infancy, tendency to infections of respiratory tract, mild rickets (common in American-Italians and negroes).

(2) The attack: Acute with abdominal pain as the most marked subjective phenomenon; moderate cough, vomiting and mild diarrhea.

The possibilities, citing the most serious first, were as follows:

Appendicitis is comparatively rare at this age and usually causes constipation; there was no localization after four days and no mass on rectal examination. Pneumococcal or other forms of suppurative peritonitis could be ruled out by the absence of toxemia and the presence of active peristaltic sounds.

Terminal ileitis is comparatively rare and usually is indistinguishable from appendicitis. It might be expected, after four days, that this condition would be worse instead of static.

Obstruction of the bowel of any type was ruled out by the presence of stools on the fourth day of illness. Typhoid fever was a possibility but there was no toxemia and severe abdominal pain is unusual in typhoid fever. Tick bite fever—there was no toxemia or petechiæ, and severe abdominal pain is unusual. Undulant fever is rare, cough, bronchitis and otitis are not an essential part of the picture.

Incipient meningitis following otitis was unlikely so early; however, meningitis often cannot be ruled out absolutely except by lumbar puncture. Absence of neck rigidity and disturbance of sensorium were definitely against this diagnosis. It is well to emphasize the fact, however, that meningitis especially in infancy may easily be overlooked.

Acute enterocolitis—the weather was not hot and the attack was not increasing in severity. Cough, bronchitis and otitis usually do not appear coincidently although they may precede.

Pyelitis may show fever and abdominal pain but the patient is a boy, toxemia usually is definite and as a rule there are no respiratory tract symptoms at the onset. However, pyelitis may occur as a complicating but unsuspected factor in almost any infection. As a matter of routine, a urine specimen should be examined in any febrile attack so pyelitis is not apt to be missed. Acute nephritis—of this there was no clinical evidence other than vomiting.

RESPIRATORY TRACT INFECTION

This explained all signs and symptoms except the prominence of the lumbar spine. This in turn, in all probability, existed prior to the illness as a residum of rickets, and had nothing to do with the picture of the acute disease.

The so-called peritoneal reaction commonly occurs in respiratory tract disease, and actual mesenteric adenitis may be present. In the latter case, a localized peritonitis may ensue in very rare instances, but the great majority recover without operation. However, a decision at times may be extremely difficult. Not only acute disease of the upper respiratory tract but also acute rheumatic infection may cause acute abdominal symptoms.

The acid-base balance in the case recorded, was not disturbed, probably because vomiting balanced diarrhea and both were moderate. Definite dehydration failed to develop because of adequate water intake. Continuance of symptoms, however, might have caused it.

The following day the child was practically well except for continued cough and discharge from the ears, following paracentesis. Sub-

sequently he was found to have some symptoms of celiac disease. He was a borderline case but this syndrome would explain in part the large abdomen. It had nothing whatever to do with the infection, however. It emphasizes the fact that previous conditions change somewhat present pictures.

This case also suggests a word of warning about appendicitis in the first two years of life. Undoubtedly it may occur with few of the classical symptoms. For example, a two year old boy was recently seen with generalized peritonitis following appendiceal rupture. The history showed a four days' mild illness, reported to be afebrile. The attending physician diagnosed pneumonia and insisted there had been no abdominal pain up to that time. On the fifth day, abdominal pain and fever developed and the patient

Figure 5: Case 3. October 23, 1931. Lipiodol injection. Cavity in distribution of the posterior branch of the right lower lobe bronchus.

looked "shocked" and yet the diagnosis of pneumonia was still adhered to. On the sixth day when seen by the consultant, he had general peritonitis of at least twenty-four hours' duration. Immediate operation was followed by a prolonged course with secondary abscess, but eventual recovery.

Although pain was not described by the parents, it is difficult to believe that it was not present in any degree or that more careful abdominal examination would not have disclosed some positive evidence of appendicitis.

Finally, let us consider an instance wherein a mass of laboratory information was available and yet one was left in uncertainty as to the true diagnosis.

Figure 6: Case 3. January 13, 1938, six years, seven months after onset. Slightly increased lung markings.

An eight year old white girl was admitted to the University Hospital on February 24, 1937.

The father had had rheumatism as a child, the mother suffers from migraine and low blood pressure. Four brothers and sisters are alive and well. A maternal grandfather had migraine and died of apoplexy. A paternal grandfather has asthma and hay fever and an aunt and uncle have hay fever. Later it was learned that several members of the family have suffered from thyroid deficiency. The patient's birth, neonatal and period of infancy had been perfectly normal. She was mentally bright, made excellent progress in school and had been in all respects normal. Her diet and daily regimen were unimpeachable.

PREVIOUS DISEASES

"Grip" and suppurative otitis media at three years; severe bronchopneumonia in her fourth year. She had also had mild attacks of varicella, rubeola and pertussis. After exposure to scarlet fever in her fourth year, she received "scarlet fever serum" with resulting severe reaction including high fever, a convulsion and urticaria. Her tonsils and adenoids were removed at five years and at seven years she had a fulminating appendicitis with rupture but made a good postoperative recovery. She was not subject to "head colds" or "coughs."

PRESENT ILLNESS

In November, 1936, she developed a moderately severe attack of bronchitis which subsided in two weeks. On December 25 she became feverish, with severe frontal and occipital headache. Two days later, cervical adenitis developed which subsided in four or five days without suppuration. After this, she seemed fairly well but did not regain her strength and energy. About the middle of January, headache recurred with pain in the left side of the abdomen and chest, extending down the left arm. This lasted a few minutes and ever since she has had recurring transient attacks of the same type of sharp pain, several times every day, usually in the left chest, abdomen or head, but at times on the right side. During all of the period since the onset of pain in January, the temperature has usually been subnormal.

On admission, February 24: the weight was 77 pounds; height fifty-one and one-quarter inches (13 per cent overweight for height). Examination showed a well nourished, unemotional child, quite contented and happy except during the attacks. The pain was undoubtedly severe, and often came on when she was engrossed with toys, or at times wakened her from sleep.

During an attack of pain there was moderate hyperæsthesia over the affected areas, but this soon disappeared. The hair and skin were slightly but definitely dry. The thyroid gland was not enlarged. There was a faint systolic murmur over the body and base of the heart of the functional type. In all other respects conditions were normal. Blood pressure 110/65.

Routine laboratory examinations showed: R.B.C. 4,500,000; Hb 88 per cent; W.B.C. 6,100; P. 67, L. 25, M. eight. Urine normal. Kolmer-Kahn negative. Tuberculin (O.T.) .01 mg. negative. One mg. positive. Fasting blood sugar 90 mg. per 100 c.c. Blood sedimentation rate, normal (six units). An orthodiagram showed a normal heart in size and shape. Röentgenograms of skull and left hand showed normal hypophyseal fossa and convolutional markings and normal bone development. Röentgenogram of the chest showed normal lung fields and mediastinal borders, with shadows suggestive of small calcified glandular elements within the mediastinal shadows.

The eyegrounds were entirely normal. Examination of the eyefields showed a slight bitemporal cut with slight enlargement of the blind spot but this was not considered to be significant.

COURSE

For the first week in the hospital the attacks of pain were less frequent and severe, occurring from one to three times in twenty-four hours. In the next eight days, however, they tended to increase to as many as ten in twenty-four hours. Throughout all of this time, she was able to eat well and held her weight. The temperature ranged from 97° to 98.6°. During sixteen days in the hospital, eighty mouth temperature readings were taken. Four times the temperature reached ninety-eight and three-fifths degrees F. All the other observations showed temperatures ranging from ninety-seven degrees to ninety-eight and two-fifths degrees, an unusual record for a child. The pulse ranged between 76 and 86.

After ten days' observation no satisfactory explanation for the attacks could be determined. They were definitely neuralgic in type, without fixed locus, and there was no

evidence of neuritis or of any organic disease other than calcifications of mediastinal nodes, and these could not explain the symptoms. Empirically large doses of vitamin B complex had been given and acetylsalicylic acid was found to be without effect. The pain was severe and certainly not related to psychic causes.

SUGGESTIVE FINDINGS

On a careful analysis, three factors appeared suggestive: (1) Low temperature and pulse; (2) dry hair and skin, and (3) definite constipation (unusual for her). These indicated an estimation of the basal metabolic rate. Considerable difficulty was encountered in securing coöperation but finally a satisfactory reading of minus 14 was obtained. In consultation with Dr. Perry Pepper, he recalled that many years ago he had seen an adult patient who had exhibited atypical severe neuralgic pain. The patient had had a subtotal thyroidectomy, basal metabolic estimation was low, and thyroid gland was given with complete relief of symptoms.

On March 11th, therefore, the exhibition of thyroid gland was begun in this child, and she was allowed to leave the hospital to stay under care of a nurse at a nearby hotel. For the first week she was definitely better, but the pain then began to recur although the basal rate was minus eight on March 21. It was found that she was worse on days when taken out on various expeditions, and better when kept quietly in bed, so she was readmitted to the hospital on April 2.

Reexamination again showed normal blood count and urine, a loss of two pounds in weight, less dryness of skin and hair, and normal stools. She remained in the hospital from April 2 to 16. The temperature ranged between ninety-eight and ninety-eight and three-fifths degrees and pulse from 85 to 95. Slight pains recurred only once or twice a day and disappeared on April 14. She was discharged on April 16, apparently perfectly well. Ten days subsequently at her home her basal rate was found to be plus eight. For the first week she had had two fleeting attacks of pain but has remained perfectly well since.

It is tempting to conclude from this account that the child had suffered some toxic effect on the thyroid gland as a result of her bronchial infection and that this in turn had originated the neuralgic pains.

As a matter of fact, in the light of our present knowledge, there is no justification for such a concept and the diagnosis must be purely tentative, hypothyroidism and neuralgia. Another diagnosis carefully considered was segmental neuralgia, as reported by John Hart Davis in the *Journal of the American Medical Association*, November 14, 1936. This he believes to be due to a virus-induced inflammation of the posterior spinal nerve roots. In the case just described, the pain was so intermittent and variable, involving the head, as well as different areas on the trunk, that it was impossible to connect them with any definite involvement of the posterior spinal roots.

So far as logical deduction with a view to treatment is concerned, it clearly points a moral. The child had neuralgic attacks. The only positive findings were (1) dry skin; (2) constipation; (3) subnormal temperature; (4) evidences of old, probably inactive, tuberculous infection. Since the first three are found in hypothyroidism, a basal metabolism test was indicated; since the metabolic rate was slightly below normal range, the exhibition of thyroid substance was justifiable.

SUMMATION

In a presentation such as this, it is difficult to avoid an appearance of pedanticism. I must beg you to realize that my object has been merely to offer friendly advice as to methods for avoiding the pitfalls which beset all of us. Mistakes are inevitable and I greatly mistrust the physician who, to his confreres at least, is unwilling to admit them. As John Lovett Morse once said, experience is the great teacher, but we must never let experience become merely a repetition of mistakes. We will never fall into that error, if we

realize that there is no short cut to success in diagnosis and that there is no substitute for a carefully taken history, environmental and personal, a thorough examination including essential laboratory aids and finally a judicial consideration of all of these factors as they apply to the patient who is being studied. As a matter of fact, a complete history and examination and the recording require at least one hour. Perhaps this forms the justification for the existence of consultants. As a corollary, we may add that in spite of all possible approaches, the exact diagnosis may elude us. With further development of medical knowledge it may be confidently predicted that these deficiencies will become more and more infrequent. To supply the deficiencies in treatment as well as in diagnosis is the great lure which so attracts intellectual curiosity conjoined with intellectual honesty in the realms of research. To the lure of medical research is added the additional incentive of altruism which we of the profession of medicine share in common with all right-minded individuals.

36th and Spruce Streets.

SYPHILIS IN MINING COMMUNITIES*

By Wm. PRICE BITTINGER, M. D.
Summerlee, West Virginia

"THOUGH syphilis has existed for centuries its opportunities for transportation and consequent infection are daily increasing and universal taint may be looked forward to with absolute certainty if some means is not devised to arrest its progress." This quotation by Dr. P. H. Bailhache of the U. S. Marine Hospital Service appeared in the May, 1938 issue of "Venereal Disease Information."

Syphilis in the United States is the most prevalent of the major communicable diseases.[1] According to Moore, the amount of syphilis in this country is from fifty to one hundred times greater than in Denmark, Sweden, and Great Britain. As a menace to American health, syphilis stands at the top, far overshadowing tuberculosis, scarlet fever, diphtheria, and automobile accidents.[7]

It is estimated that syphilis strikes one out of every ten adults in the United States, and if it strikes an individual, his life expectancy is almost 25 per cent less than that of other people, depending upon the age of the individual.[5] It is a dangerous enemy of youth, for three-fourths of all infections are acquired by men and women between the ages of sixteen and thirty.[3] In the United States half a million new cases come to doctors and clinics each year, but less than half seek treatment within the first year.[3] Sixty thousand living syphilitic babies are born in this country each year. Many more die before they are born. It is estimated that at least 90 per cent of mothers infected with syphilis could have healthy children if adequate treatment were given during their pregnancies.[3]

My reason for offering this paper is the great prevalence of syphilis in industry in West Virginia. We find this high percentage due to the employment of so much colored labor, referring especially to those who have recently come from the more southern states, where seemingly there has been little required in the way of diagnosis and treatment. We believe we have a set-up which has worked in the control of this condition. This program has been working for the last seven years and is working much more effectively now than when we started in 1931.

We believe that modern medicine working in industry should give the employees a thorough physical examination and as a part of this examination the serological test for syphilis is one of the most important. Parran

*Read before the Section on Internal Medicine, West Virginia State Medical Association, at White Sulphur Springs on July 11, 1938.

states that of eighty industrial organizations employing nearly a million persons, only fifteen make routine blood tests as a part of the employment examination. This examination gives the doctor an insight at the start, not only into the man's physical condition, but also into that of his wife and children who may be under the doctor's care and in many cases helps to prevent congenital syphilis.

The public is beginning to learn what the doctors have long known, that there is a definite way to diagnose syphilis and a specific cure for it. It is to be regretted that these two—diagnosis and thorough treatment—have not been widespread until recently.

In 1931 Mr. S. A. Scott, president of the New River Coal Company, called the doctors together and told them that something should be done about the great amount of syphilis in our mining communities. What could be done about it? Could the local doctors treat it? Would it have to be treated in the hospitals or would we turn it over to the state? It was left up to the doctors to work out a plan.

START IN SMALL COMMUNITY

We decided to start with one small mining community and see what could be accomplished. In this community an examination was made of all men then working, also examination of applicants for work was begun. From this, the work was extended to the other thirteen communities of the New River Company situated in Fayette and Raleigh counties representing a population of 14,000 people.

In 1931, it seemed a little new to be taking a blood test on all employees of a large coal company and it seemed a little strong to insist that they all take treatment if they continued to work. It was often an unexpected idea to the average employee. Parran was not Surgeon General. He and Vonderlehr had not started their national blood purge. It was before the widespread state venereal clinics. There was no separate bureau of venereal disease in West Virginia. We hardly knew how to go about it. We made mistakes. We were afraid at first of pushing it too far. Instead we did not push it hard enough nor treat them long enough. Our progress was slow but we kept at it, taking blood tests on all new men, treating practically all positives. Once in a great while it was impossible to get an infected man to take treatment. In one instance in 1931, an infected Holy Roller preacher refused to take treatment because of his beliefs. He voluntarily left the community, and when he returned a short time later was not rehired.

EXAMINATIONS

We make the regular physical examination of all new employees. If the man passes the physical examination a specimen of blood is taken and examined for syphilis. It is put through the Kline, Kahn, and Wassermann tests. As the majority of our cases are latent the diagnosis depends on this serological test. The history is not of any value in trying to pick up latent syphilis. There is no way to recognize latent syphilis except by serologic tests. Modern tests are efficient in detecting untreated latent syphilis in 90 to 95 per cent of the cases.[2] After you get a positive test the history is of some value and you usually can then get a definite story of the infection. When a man gets a job he agrees to take a blood test for syphilis and if positive to take treatment. He also agrees to this for his family.

When the test is positive a record is begun on this case. He is notified to report. However, the notification does not mean that he has syphilis or that any official knows that he has syphilis. It may mean that the blood test is broken, hemolyzed, or unsatisfactory and another one is required.

When he reports he is questioned about a history of syphilis. We try to classify the kind. He is reexamined, especially the cardiovascular and central nervous system. He is advised to bring his family in for examination and the treatment is outlined. He can take treatment from the resident physician or any other physician of his choosing, provided

he brings in a report of his treatment so that the resident physician can keep a record.

We have three standard forms that were started in 1937 that have been of great help in keeping up with this work. The first one is the daily record of blood tests made, and these are classified as white, colored, foreign, wives, and children. This gives us the number of examinations made with the percentage of positive cases.

The second form is the positive case record and is started as soon as a diagnosis of syphilis is made. This record gives a condensed history of the man, showing the treatments given, with the dosage. This enables a physician to keep an accurate record, and if necessary another doctor can pick up the record and treat the case intelligently.

The third record is the date patients are to report for treatment. This is a most important record; a patient cannot be forgotten and he knows it.

RECORDS KEPT PRIVATE

These records are kept private, but are inspected each month by a man from the general office. This man does not know these men locally. He talks over the program with the doctor and if any man is not coming in, the superintendent is advised and the patient is directed to report. There are very few who will not come in, especially if the word gets around that they have to report regularly in order to keep on working. They do not lose any time from their jobs in taking treatment.

We have found the white man is the most receptive to the need of taking treatment and comes in with regularity. The colored man and colored woman come next, and they are about on a par. The white woman is the most reluctant. She feels disgraced, blames her husband, and fears her condition may become known.

We endeavor to report to the county health officer the names of those leaving the locality without adequate treatment. Especially is this true of those who have had a few injections of arsphenamine unsupported by any heavy metal. We know they are worse off than if they had had no treatment. As Stokes says, "They are left without a cure, and no immunity."

In the latter part of 1937 we started the second phase of the work. We made a blood recheck of all employees. This recheck was composed of many of the originals examined in 1931 and in addition, all who had been employed since then. We had passed 8575 men for employment since 1931. This represents a large labor turnover. By this recheck we hoped to retest those already treated, to pick up the cases of our old and new employees who had developed syphilis since 1931, and to detect any that had in some way slipped through our fingers; to compare 1938 with 1931, and to see how we were doing.

After the diagnosis is made and the case classified, we begin treatment. We try to follow the routine prescribed by the Cooperative Clinical Group. However, we individualize the patient and the routine is changed accordingly. We endeavor to give 70 weeks of treatment—forty of bismuth and thirty of arsphenamine. As most of these cases are latent, we begin, of course, with a heavy metal, bismuth as a rule. We end every course with a heavy metal except in cases of pregnancy when we are treating the fetus, not the mother. As Moore expresses it, "Pregnancy is good for syphilis in the mother, but syphilis is not good for pregnancy."[2]

WEEKLY TREATMENTS

We like the oil-suspended, water-insoluble bismuth salicylate or subsalicylate given once a week. Practically all our treatments are given weekly except in syphilis discovered late in pregnancy, when we give two injections of an arsphenamine each week.

"Bismuth", says Stokes, "is as effective as mercury and a more rapid preparatory treatment for arsphenamine, combining the low toxicity and freedom from shock effects of mercurial inunctions with the more prompt favorable action on symptoms of an arsphenamine. It fits in with arsphenamines early and late."[6] He continues, "Iodide ought not to

be a stop-gap; it is not a spirrillicide; it is not specific; yet if no contraindication appears, and you are in doubt whether to give it or not, better give it."[6]

We use soluble bismuth when we want to get quick results but are afraid of arsphenamine, as with a chancre in an elderly person and often in children. For our arsenic, we prefer mapharsen. The majority of our cases are latent and that is when mapharsen is especially indicated. As you know it is the arsphenamine oxidized outside the body. Since it is directly spirocheticidal, effective doses are small. As Astrachan of Columbia, who did some of the first work on mapharsen, points out, "A complete or biological cure in these cases is difficult to achieve even with the most powerful drug, old arsphenamine or salvarsan. The purpose of treatment in these patients is the checking of the progress of the disease, the reduction of the possibility of relapse, relief from clinical symptoms for the patient, and the prevention of infection of others."

MAPHARSEN IS GOOD

Mapharsen is good in cardiovascular cases, excellent in pregnancy. Patients like it. There is little danger of dermatitis, hepatitis, and nitritoid crisis. We have given 4,400 doses with no fatalities and hardly any reactions. Patients do not miss the next day of work. Mapharsen is less toxic than neoarsphenamine, and is easier to give, but it does give some pain in the arm. This can be lessened by dissolving it fifteen to twenty minutes before giving.

As a rule, we give a heavy metal as bismuth, a course of mapharsen, heavy metal, and the next time we use neoarsphenamine. We prefer neoarsphenamine rather than mapharsen for the primary cases and early secondary cases. We use sulpharsphenamine in children, tryparsamide in central nervous system syphilis, with frequent examination of the optic nerve by an eye men, both before and during the course. A case of optic neuritis not long ago cleared up when tryparsamide was stopped.

Mercury is used mainly as a change from bismuth in Wassermann-fast cases. It is also used in hepatic and cardiovascular syphilis. It has the advantage that it can be given many ways; bismuth only intramuscularly. Mercury intramuscularly gives too much pain, especially in those who have to work the next week in a sitting position.

The weight is very important in drug tolerance and caution should be exercised in antisyphilitic treatment in patients who lose weight rapidly.[9]

Stokes says, "At each interview, look first at the patient, then at his record."

Infection from untreated syphilis is unlikely after five years but not impossible. In addition, treatment aims at the control of the potential infectiousness of the latent syphilitic.

We endeavor to test for syphilis the wives and children of positive cases, and treat those that are positive. We are getting along better at this now than we did at first. The recent publicity given syphilis has helped. Films on syphilis have been shown in our communities and literature has been made available.

The following tables will show the incidence of syphilis among miners and the result over a period of seven years in lowering the percentage of positive blood tests.

TABLE 1—REPORT OF BLOOD TESTS—1931

	Men Examined	Positive	Percentage
White	1,765	95	5.38
Colored	1,001	168	16.78
Foreign	559	39	6.98
Totals	3,325	302	9.14

COMMENT—Note the high percentage among the colored men. One man out of six has a positive blood. The American white is slightly lower than the foreign born. Our tests are on miners who are able to work every day. Those who are disabled from syphilis are not employed, and therefore are not included.

TABLE 2—REPRESENTS THE NEW MEN EMPLOYED FROM 1931 TO 1938

	Men Examined	Positive	Percent
White	5,223	257	4.92
Colored	2,579	335	12.98
Foreign	773	40	5.17
Totals	8,575	632	7.39

COMMENT—Percentage of syphilis is somewhat lower in all groups, especially the colored. We believe this is partly due to the fact that we are reemploying as new men during these years, many of the old men who had left the job after being treated. Also since the thorough treatment of syphilis is more general in the last few years, the rate may have been lowered.

TABLE 3—REPORT OF BLOOD TESTS—1933

	Men Reexamined	Positive	Percentage
White	2,985	64	3.06
Colored	920	142	15.43
Foreign	274	14	5.10
Totals	3,279	220	6.70

COMMENT—Percentage reduced to 6.7 by this program. This test is probably more sensitive in 1938 than in 1931, which will make the positive percentage greater and enhances the value of a negative report.

TABLE 4—NUMBER OF POSITIVE CASES—MEN NOW NEGATIVE

White	Colored	Foreign	Totals
184	80	16	280

COMMENT—We are not saying these people are cured. "No series of negative tests can ever mean cure."—Stokes.

TABLE 5—WOMEN AND CHILDREN—1931 TO 1938

	Number Treated	Now Negative
Women	162	84
Children	87	44
Totals	249	128

We plan to do more work among the women and children. This work has benefitted the men more than the women. The wives and children of positive men have been examined, other women with clinical symptoms and signs, and the cases of pregnancy that we know about. We hope to establish more prenatal clinics. We plan to work out a system to take a blood test on every woman before she moves into our community. In this way we hope further to reduce congenital syphilis.

We try now to take a blood test on chronic illnesses. We feel that we must take more of them. We have a number of cases with a record of a negative blood and vague symptoms who later showed a positive blood and whose symptoms have been relieved by luetic treatment.

We should make more examinations of spinal fluids. We are not doing it as a routine, but are if any signs of central nervous system involvement are noted. This is a hard thing to put across to the average industrial worker. It is probable that this will have to be done partly through our hospitals. We will also have to work out a plan to get consultation on our blood-fast, cardiovascular, and central nervous system cases.

As for those cases leaving our communities without adequate treatment, we hope to do more in locating them and see that they do get adequate treatment. Especially is this necessary with those who have received a short course of arsenic with no heavy metals. They are in a dangerous condition and should be looked after. There is no reason why they cannot be compelled to take adequate treatment wherever they go.

Of far greater importance than the lowering of the percentage of positive tests are the resulting facts:

1. Infection of many others has been prevented. Congenital syphilis has been reduced.
2. Clinical symptoms have been lessened and in many cases relieved entirely.
3. Progress of the disease has been checked with many cardiovascular and central nervous system conditions prevented.

In this way we have benefitted the employees and their families. The physician is in control of the situation at the start and not after patients begin to have headaches, ringing ears, stomach trouble, rheumatism, backaches, neuralgias, neurasthenia, all kinds of seizures and spells, lightning pains and girdle sensations, numbness and prickling feelings. It has saved many useless surgical operations, and has prevented many abortions and miscarriages. Often the physician could almost rule out syphilis at the start and turn to the consideration of some other diagnosis.

It has benefitted the employer least of all. It would be much easier for him not to hire any known syphilitic but that would throw a great load on the relief agencies and the state. It would be hard to prove that untreated syphilitics increase the number of accidents and compensation cost. There is disagreement whether syphilis delays bony union. Moore states, "There is no adequate information now available which indicates that compensation or social insurance costs are increased by the employment of those who have had or do have syphilis."

Leaving out the cases of cardiovascular and central nervous system syphilis which are excluded anyway by the routine physical examination, the greatest benefit to the employer is in having a better type of citizen with which

to deal, and in doing his part in the control of this plague which uncontrolled will indirectly raise the tax load to a much higher figure.

SUMMARY

A plan has been presented to diagnose and treat syphilis in industrial communities of West Virginia. This plan has been in operation for the last seven years. It has been improved since its beginning in 1931 and we hope to improve it further.

The percentage of positive serological cases has been reduced from 9.14 to 6.7 with a labor turnover of 8,575 men and a constant labor employment of 3,500 men.

All positive men have been treated. By so doing:

1. The infection of others is stopped.
2. Progress of the disease is checked.
3. Clinical symptoms are improved.

Infected wives and children of infected men have been treated.

Other positive women have been treated.

Congenital syphilis has been reduced.

DISCUSSION

Dr. C. N. Scott, Charleston: In West Virginia syphilis generally is not determined among industrial workers, nor is it followed up. The follow-up of patients and the tracing of all sources of infection is just as important as making the diagnosis. Industrialists are busy men; they have very little time to question employees about the source of infection. I want to emphasize, as Dr. Bittinger did, that the follow-up of patients is most important if we are to control the problem among workers and their families.

Industry has long realized that health programs pay good returns for the money invested, but it is unfortunate that industrial organizations have allowed venereal disease programs to be incorporated in their regular health programs.

Safety programs in industry have increased production and lessened cost, and in view of this experience, to increase efficiency by lessening the burden of syphilitic employees is essential. Let us consider syphilis from its various stages. The worker having primary syphilis presents the problem of infection. To the worker the reaction is that of anxiety and depression and this constitutes the first loss to industry. The second stage presents a similar mental outlook on the part of the patient and it is during this stage, as well as other stages, that many physicians make the mistake of telling the patient that he is cured by the old-fashioned remedy of six injections for a certain price. It would be unfortunate indeed if any physician in the light of our present knowledge should practice this method of treating syphilis.

Cardiovascular syphilis may manifest itself, and usually does, by sudden death among industrial workers. This represents about 10 per cent of heart diseases.

Neurosyphilis may first manifest itself by minor errors of coordination, and locomotor ataxia may develop in any latent case of syphilis.

As you all know, syphilis can be treated with greater success than any other serious disease and although treatment is not a simple process the results of treatment are greater perhaps with syphilis than with any other chronic disease.

Dr. O. D. Barker, Parkersburg: For some time I have had the feeling that syphilis is not a matter of education and prophylaxis. During the war four million men were adequately educated in the prophylaxis and prevention of syphilis and as soon as they were released from the Army where the compulsory program was carried out, it was a matter of sheer indifference that caused them to disregard the things they had been taught.

The establishment of public prophylactic stations, prophylactic stations so far as institutions are concerned, is a waste of money. The successful establishment of prophylactic stations so far as industrial medicine, the Army and the Navy is concerned, can be carried out effectually.

I believe that the percentage of reduction of Wassermann positive cases can be affected materially through the careful work that is being carried out by the New River Company under the management of Dr. Bittinger, as well as a number of other industries throughout West Virginia.

The greatest advancement that has been made in syphilis in the past twenty years to my mind is the prevention of congenital syphilis. During the past five years I have had the opportunity of seeing two cases of congenital syphilis. Congenital syphilis can be prevented if the expectant mother is taken in time and given appropriate treatment and enough treatment.

I think as time goes on, programs can be arranged and carried out more effectively not only in the

prophylaxis of syphilis but in the treatment as well. I am glad to have heard this paper and I hope the work will continue, especially in the large industrial coal companies.

Dr. G. H. Gehrmann, Wilmington, Del.: I think Dr. Bittinger has done a splendid job, especially in the follow-up of the families of employees. In our duPont organization we have been doing a similar work for four years, but unfortunately it is impossible for us to follow up the family.

You might be interested in the percentage of positives that we have picked up in four years. In 73,735 individual cases in 28 states we have an incidence of 4.4. It varies of course in different states. In Charleston, West Virginia, our incidence is 5.8

I would like to point out some of the difficulties that we have encountered.

We started out using private and state laboratories for making our Wassermanns and Kahns and soon found that it was too much of a load for them to carry. Also we were amazed to find out how many laboratories were giving us inaccurate results. A very simple method of finding out how accurate your laboratory is, is to take a given number of positives and send in two or three samples from that individual marked with different names. You will be amazed to find out the number that come back marked negative and positive. In a recent test in one of the state laboratories we sent in three samples from a known positive. Two came back negative and one came back positive.

We found it necessary to set up our own laboratory where we are now doing as many as 350 Kahn tests a day. That is expensive, but you might be interested also to know that it costs us exactly twenty-two cents apiece to do Kahn tests, and that includes twelve cents for the Keidel ampule that we use for drawing the blood. I think in any program of this kind, whether in industry or private practice, the accuracy of your blood test is extremely important.

The information that we gather in our medical division is confidential between the patient and the medical division. No one other than the doctor and the patient himself knows that he has syphilis, except the physician to whom he goes for treatment. We do not treat our own cases; we send them to local physicians.

We have found that by giving employees leaves of absence who show up with a primary chancre, we establish their confidence. They will come in and report their condition. When you get them under treatment they know they are not going to be let out.

Our greatest difficulty has been in securing adequate treatment for our employees. I think it well for us to review just what the difficulties are. First, the doctors throughout the country have a tendency to charge a man more than he can afford to pay; they do not take into consideration his income and how much of that income he can give toward the treatment of syphilis. Secondly, we find amazing types of treatment, going from pills to two or three injections of neoarsphenamine or simply injections of bismuth. In one locality where we had a relatively large group of people to be treated, the medical society went on record as saying that these people did not need treatment. We were forced in that particular instance to give treatment ourselves to a group of 35 employees.

One very important point which should be brought out, is that certain individuals with syphilis should not be employed in certain occupations. For example, we know that compound carbon disulphide affects the central nervous system, and that it will aggravate a latent case of syphilis. When you come to make a differential diagnosis between a mental condition produced by carbon disulphide and syphilis, it is extremely difficult and almost impossible. The same is true of lead. There are certain other natural compounds which affect the circulation, and also the central nervous system, and here it is unfair to put the syphilitic to work. It is only in these groups that we find it necessary to exclude the syphilitic, and that is for his own protection.

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HEALTH BROADCASTS

A new series of dramatized health broadcasts is being presented this year by the American Medical Association and the National Broadcasting Company; the broadcasts are being slanted intensively to their reception in grade and high schools as were those of the former series. These weekly programs are heard each Wednesday at 2 p. m. eastern standard time and 11 a. m. Pacific time.

PULMONARY SUPPURATION*

By LOUIS H. CLERF, M. D.
Philadelphia, Pennsylvania

THE unfavorable influences of chronic nontuberculous pulmonary suppuration on the social and economic life of a patient and the common disabling physical effects emphasize the importance of prompt diagnosis, appropriate treatment and, most important, its prevention when possible.

Pulmonary suppuration is a rather general term but is satisfactory for purposes of discussion and may be employed to designate pulmonary abscess and bronchiectasis. Although these differ etiologically and pathologically, in fact, in practically every respect in their beginnings; in the advanced cases they commonly coexist.

Recent advances in the study of chest diseases have contributed to more accurate diagnosis and to a more comprehensive understanding of the pathological anatomy. Probably the outstanding contributions have been made by bronchoscopy and the use of iodized oil to aid the röentgenologist. In addition to these, thoracic surgery has contributed greatly in the past few years in that we have had an opportunity to examine the diseased lung in cases of pulmonary abscess and particularly of bronchiectasis. The anatomical picture in these cases differs greatly from that observed at the postmortem table where there usually is an associated pulmonary gangrene as the terminal event.

These diagnostic procedures are all designed to ascertain if disease is present. Little if any emphasis has been placed on the prophylaxis of pulmonary suppuration. The problem of prevention of pulmonary abscess and particularly bronchiectasis is the responsibility of those who see patients early in the course of pulmonary disease. In order to discuss these responsibilities it is necessary to consider pulmonary abscess and bronchiectasis from an etiological standpoint.

PULMONARY ABSCESS

There has been much discussion regarding the various theories underlying the etiology of pulmonary abscess. Whether it is caused by aspiration, embolism or both, it is quite apparent that infection is necessary. I have always believed that aspiration is a very important factor in the etiology of pulmonary abscess.

In a series of 172 consecutive cases of pulmonary abscess referred to the Bronchoscopic Clinic, Jefferson Hospital, for diagnosis and treatment, it was found that 121 cases (70 per cent) developed following operations. Of these, 97 were performed for removal of tonsils and adenoids. Since this report which was published in 1929 we have had over 100 additional cases of abscess of the lung following tonsillectomy. It is of interest to note that over 90 per cent of all these operations were performed under general anesthesia. It would seem therefore that aspiration is a very important consideration in etiology. This is further emphasized when one recalls that abscess in the tonsillectomized patient is most common between the twentieth and fortieth years at a time when local anesthesia is more commonly employed. Every precaution therefore should be utilized by those engaged in the performance of mouth or throat operations to prevent aspiration. The question of anesthesia and its employment are important considerations. In passing, it may be stated that aspiration may occur in a patient tonsillectomized under general anesthesia after he has been returned to his bed.

Along lines of prevention I would consider important the prompt recognition of post-

*From the Department of Laryngology and Bronchoscopy, Jefferson Hospital, Philadelphia, Pa.

**Read before the West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

operative pulmonary complications with a view to determine whether the process is a postoperative pulmonary atelectasis or a pneumonitis. In cases of aspiratory origin the infected material sets up a pulmonary infection which should be considered as a pneumonitis or cellulitis rather than a true pneumonia. This may undergo resolution, may break down with cavity formation or, in the occasional case may develop into bronchiectasis. In a considerable experience with postoperative complications other than massive atelectasis we have secured amazing results by prompt bronchoscopic investigation and aspiration before the pneumonitis had an opportunity to go on to abscess formation. An interesting case recently came under my observation. A physician while eating peanuts had a severe paroxysm of coughing and aspirated a number of fragments of nut. During paroxysms of coughing he recovered a number of particles. In about 24 hours there developed pain over the left chest anteriorly which, several days later, became quite marked; on the fifth day there was heard a pleural friction rub and this together with other signs suggested a pneumonic process. About the twelfth day following the accident the patient coughed up a large quantity of foul pus. A röentgen study made following this revealed a small abscess involving the upper lobe of the left lung. At bronchoscopy I was unable to find any evidence of foreign body. The findings by physical examination and röentgen study together with bronchoscopy corroborated the diagnosis of pulmonary abscess. It was believed that this resulted from aspiration. It would seem therefore that development of pulmonary signs following an accident during which aspiration of secretions or foreign material might have occurred would immediately suggest a pneumonitis which either will go on to resolution, abscess formation or possibly to the development of a bronchiectasis. These patients should have the benefit of bronchoscopy. It is admitted that many of them will recover spontaneously without aid other than rest in bed. When, however, one considers the serious nature of chronic pulmonary abscess it would seem desirable to try to avoid such developments by appropriate measures rather than to wait and see what will happen.

In a well developed case of pulmonary abscess one must depend on aspiration and maintenance of adequate drainage to obtain a cure. Various forms of medication have been employed in treatment. Those with merit should be utilized. None, however, can supplant drainage either via the natural channels or through the chest wall. Bronchoscopy is a simple means of improving drainage through the normal passages. If medical treatment combined with bronchoscopy is not successful then one must contemplate external drainage. In connection with this one must also bear in mind that external drainage entails a very definite hazard.

BRONCHIECTASIS

Bronchiectasis, characterized pathologically by dilated bronchi which are often distorted and associated with peribronchial changes, characterized clinically by cough, expectoration of pus which may be fetid, occasional fever and hemoptysis, is a relatively common condition. Although it may be congenital, our interest is primarily in the acquired form. Several facts are noteworthy; namely, that it is secondary to preexisting disease; that it commonly involves a lower lobe; that it begins in the smaller bronchi; that it is common in children; that the symptoms and physical signs in the early case are not characteristic rendering diagnosis difficult and that bronchial obstruction is a common predisposing etiologic factor.

Unlike pulmonary abscess there is no localized tissue destruction with formation of a cavity. Instead, there are changes in the bronchial wall with dilatation of the lumen of the bronchus, replacement of normal bronchial and peribronchial tissues with fibrous tissue and loss of normal lung function. The dilatations may be cylindrical, saccular, or a combination of these. The changes in the mucosa are associated with increased produc-

tion of secretions which are altered in character, tend to be retained in the bronchi, are acted upon by saphrophytes and become fetid. Hemoptysis is not uncommon.

Much of our recent knowledge has been acquired through bronchoscopy and the employment of iodized oil for diagnostic purposes. We have been impressed that bronchiectasis usually is not a primary disease but represents pulmonary changes which have resulted from preexisting disease. The dilatation of the bronchi are permanent and restoration to an anatomic normal is impossible. The question immediately presents itself, what are the causes of bronchiectasis, in other words to what is it secondary? In recent years there have been many theories concerning its etiology. Briefly summarized, there are certain general factors necessary to cause bronchiectasis. First and most important is infection; next in importance is bronchial obstruction.

Bronchial obstruction with retention of secretions as may occur in foreign body or in inspissated secretions, bronchial neoplasm, broncholithiasis, compression stenosis and stricture of a bronchus are common causes. It is often observed in childhood as a sequel to bronchopneumonia complicating measles, whooping cough, and other acute respiratory infections. There were many cases observed following influenzal pneumonia during 1918. It is observed in patients, particularly children with nasal sinus infection who, predisposed to repeated acute respiratory infections, have frequent so-called pneumonia. It is not uncommon in patients with long continued esophageal obstruction.

DIAGNOSIS

Diagnosis of early bronchiectasis often is difficult. The findings by physical examination and röentgen study cannot always be relied upon. In these lung mapping is of value. In a proper study of a case of suspected bronchiectasis one should determine if it is obstructive or nonobstructive, if other possible etiologic factors are present and the location and extent of the bronchial changes.

The prognosis of untreated bronchiectasis is not good. There is a tendency for the disease to progress. Symptoms may be relieved if infection can be cleared up. The bronchial dilatations, however, will not disappear. Pyothorax, pneumonitis and brain abscess are not uncommon complications.

TREATMENT

There is nothing more difficult to treat by expectant or symptomatic methods of treatment. Unlike tuberculosis, the employment of rest, posture, general hygienic care and symptomatic treatment are not followed by cures. In obstructive forms drainage must be improved. If there is an associated nasal sinus infection this should be treated. Stagnation of secretions can be relieved by employment of posture, bronchial irrigation, instillation of iodized or other oils and bronchoscopy. Expectorants and other forms of internal medication are of limited value. Vaccine therapy is of some value in certain cases. Pneumothorax is but a temporary measure and is not without hazards. Phrenic nerve interruption and thorocoplasty have been practiced. The only surgical treatment worthy of consideration is extirpation of the diseased portion of lung.

Prevention should be directed towards prompt investigation and relief of bronchial obstruction, careful study of cases of nasal sinus infection with associated cough and the employment of iodized oil as a diagnostic aid in all suspicious cases of chronic pulmonary infection.

To recognize the presence of bronchial obstruction one must be familiar with the signs and symptoms produced by this condition. This necessitates a consideration of wheeze and of changes incident to partial and complete obstruction; namely, obstructive emphysema and obstructive atelectasis. Wheezing respiration is indicative of partial obstruction of the airway. Its common association with asthma has led to many errors in diagnosis. New growth and foreign body in the bronchus often have an associated wheeze at some time during their course. It would seem important

therefore to consider every patient with wheezing respiration as a case of partial bronchial obstruction which if continued, may ultimately result in bronchiectasis.

Obstructive emphysema and obstructive atelectasis can best be recognized by röentgen study of the chest. The clinician, however, can recognize these equally well by physical examination. Time will not permit a detailed discussion of the physical signs. It is important to compare the two lungs and to determine the position of the heart and mediastinal contents during the respiratory cycle. Any signs or symptoms to suggest bronchial obstruction should immediately indicate an x-ray study. If this corroborates the clinical findings bronchoscopic investigation should be seriously considered.

The association of suppuration of the accessory nasal sinuses with bronchial disease has led to considerable discussion concerning the influence exerted by accessory sinus disease on the bronchi. Whether there is a predisposing influence cannot be absolutely determined. Suffice it to say, however, that the concomitance of bronchiectasis, particularly bilateral, and nasal sinus disease is not uncommon. I have long held the opinion that the presence of sinus disease especially in children exerts a definite influence on the occurrence of bronchopulmonary infections of a character which often are complicated by bronchiectasis.

While thoracic surgeons have made remarkable recent contributions in the treatment of bronchiectasis it is quite evident that the amputation of one or more lobes of one or both lungs is not the solution of bronchiectasis. There must be a more keen appreciation of those factors that are productive of bronchiectasis and a more enlightened view concerning the early correction of conditions that are either predisposing or exciting factors in the etiology of bronchiectasis.

1530 Locust Street.

LOCAL ANESTHETIC CRISES IN RHINOLARYNGOLOGY*

By SOBISCA S. HALL, M. D. and HARRY V. THOMAS, M. D.
Clarksburg, West Virginia

WE HAVE chosen the subject of this paper so that we may deal exclusively with essential classical manifestations of the title and we shall leave to your more leisure reading from standard text-books the pharmacodynamics, the actions of the various antidotes and other textual material. We consider these very well stated in standard text-books.

Just what is meant by a local anesthetic crisis in rhinolaryngology? There are two types of crises which we believe should be recognized and classified: These may be called minor and major.

The minor crisis refers to the circumstances where the patient simply feels nauseated, becomes slightly pale and acts syncoptic. This condition passes off rapidly usually if nothing more is done than to reassure the patient. We are not convinced that it is even due to anesthesia, as we feel it is due largely to psychic shock incident to preparatory surgical procedure.

The major crisis, however, is an entirely different thing. Here we have a patient who goes into collapse quickly and profoundly from which he is likely not to respond without heroic, well-considered measures. With the symptoms of major crises we shall deal at length later.

There are a great many local anesthetic agents used in rhinolaryngology, both topically and by infiltration. Some of the better known are alypin, apothesine, benzyl alcohol, butyn, diothane, larocaine, metycaine, nupercaine, phenacaine, procaine or novocaine, tutocaine, benzocaine, butesin, orthoform and co-

*Read before the Eye, Ear, Nose and Throat Section, West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

caine. You will note that we have made no mention of other methods of anesthesia that may be used locally such as thermal as in the use of ethyl chloride sprayed upon the surface.

There is a definite toxicity associated with the use of any and all of these local anesthetic agents. Some of them are used exclusively by infiltration, some of them are used only topically and some of them may be used both topically and by infiltration. The drugs most commonly used apparently by our branches of the medical profession are cocaine, procaine or novocaine, butyn and occasionally larocaine. The relative toxicity of these four drugs is well known by the medical profession.

The antidotes for these anesthetic agents fortunately are essentially the same. Probably it is better to speak of the treatment of the patient than to mention antidotes as such, for we do not believe that chemical antidotes would save the patient's life without the other necessary procedures which are not even related to drugs. We shall deal at length with this phase under treatment.

Just what are the symptoms of toxicity? Mansfield' very nicely outlines the symptoms of cocaine and novocaine toxicity. He gives them in the period of their onset as:

1. Excitement, exhilaration and uncoordinated muscular movements.
2. Throat dry and mouth.
3. Pulse first rapid, then slow.
4. Respiration first rapid, then slow.
5. Pupils dilated.
6. Temperature above normal.
7. Skin first hot and dry, then cold and moist. There is a sensation of insects crawling on the skin.
8. Delirium, hallucinations and frequently mania.
9. Convulsions.
10. Collapse.
11. Coma.
12. Respiratory paralysis.

By reference to the case reports offered it will be found that these symptoms were essentially present in every instance cited.

In our opinion to prevent the crisis is the best treatment. This will not always be possible, but in a large number of patients the crises can actually be modified if not prevented. One should always obtain a history of any possible sensitivity to these drugs. We have on a few occasions been able to avoid a possible crisis by giving due credence to a reliable statement of the patient. Under all conditions one should not start a local anesthetic until he is prepared to combat a crisis. This means that the patient must have his preoperative medication long enough before anesthesia is begun to have it absorbed and generally distributed to the tissues; this medicament is primarily a barbital product. Our preoperative orders for an adult of normal size is morphine sulphate, grains 1/4 with atropine sulphate grains 1/150 hypodermically forty-five minutes preoperatively and barbital grains XV thirty minutes preoperatively. This means that the patient will have had his entire medication within one hour prior to surgery. In cases where any surgical procedure of any consequence is contemplated under local anesthesia, hospitalization should be mandatory. The hospital personnel, atmosphere and equipment in itself is a real safeguard. On each local anesthetic tray prior to the institution of surgery, there is prepared and ready for use two hypodermic syringes with appropriate needles along with ampules of coramine, adrenalin, caffeine sodium benzoate, sterile water and one ampule of seven and one-half grs. of nembutal. This local anesthetic tray of emergency medicaments has been prepared for us no less than 2500 times and we have used it but twice and in each instance a recovery was enjoyed; probably lives actually saved.

The treatment of a local anesthetic crisis requires as much ingenuity as you will likely be called upon to use in a long medical experience. The nervous tension on the operator is almost unbearable and usually the excitement of the attaches is such as to excite further a tense situation. The patient must immediately be put in a recumbent position

on a table or floor where artificial respiration can be begun and continued for a sufficient period of time; 0.5 gms. of nembutal is given intravenously quickly. In the place of nembutal, sodium amytal, evipal or any of the other barbital products for intravenous use may be chosen. There is some debate among the pharmacologists as to whether coramine, alpha-lobeline and more recently metrazol are really respiratory stimulants. However, there is enough evidence to justify their use and we have used one of them in each crisis without ill effects. Adrenalin, hypodermically or intravenously is an absolute necessity. Oxygen and carbon dioxide administered by gas machine through a tight fitting face mask in the presence of artificial respiration is an adequate means of avoiding suffocation. You will note under the case reports, application of these principles. The following four case reports represent two in our practice, one in the practice of Pickett[2] and one from the practice of Daly.[3]

CASE 1

The following is illustrative of procaine poisoning: Mrs. H., wife of Dr. H., chart No. 4875 (H & T:) On August 26, 1932, this patient had prior to her operation, morphine sulfate grains 1/4 with atropine sulfate grs. 1/150 hypodermically, and this was ordered 45 minutes preoperatively; also 15 grains of barbital 30 minutes preoperatively. The patient was brought into the operating room and nothing was said about her having come in late, and having been given her medication less than ten minutes prior to her being brought up to the operating room. It was only after a check-up, following the operation, that this was determined.

The operation was begun at 8:30 at which time 20 c.c. of 0.5 per cent procaine with 1:80,000 adrenalin was injected. The injected tonsil was practically out when the patient began to turn a peculiar, slaty blue color and to mutter incoherently. At 8:40, 15 m. of adrenalin chloride was given and at 8:43 caffeine sodium benzoate grains seven and one-half hypodermically were administered. The patient went into complete collapse and at 8:45 she was placed upon the operating room table. Artificial respiration was begun at once and her pulse could not be found and no motion could be felt immediately over the precordium. The first convulsion occurred at 8:45 was generalized and extremely severe. At 8:50 adrenalin chloride 10 m. was given again. Artificial respirations were being continued without any signs of reaction on the part of the patient. At 8:45 alpha-lobeline grains 3/20 were administered subcutaneously. At 8:45 the gas machine was brought in and carbon dioxide and oxygen were given by the gas mask. During this time artificial respiration was being maintained.

The last convulsion occurred at 8:46 and nembutal grains seven and one-half was given intravenously during the convulsion. Immediately, as though by magic, the convulsion was controlled and her color began to improve. Artificial respiration was continued for another ten minutes. The heart action could now definitely be noted in the wrist although the pulse was weak and extremely rapid. Her color continued to improve and after about fifteen minutes she began to breath irregularly. Artificial respiration was discontinued, consciousness returned and she was taken to her room at 9:35. Convalescence was entirely satisfactory.

CASE 2

Mrs. C. R. C., chart No. 13165 (H. & T.): This patient had a most unusual experience which we believe was solely from cocaine. At about 9:20 on August 23, 1937, fifteen minutes after the application of cocaine endonasally, she began to mutter incoherently, her color became grayish although the pupils were not even slightly dilated, and were apparently being maintained in miosis by her opiate. We completed the nasal surgery as quickly as possible and packed the nose. About 9:23 patient's pupils began to dilate slightly being about three mm. in diameter at that time. Her lips were grayish blue and she was becoming slightly rigid. At about 9:24 patient had a slight generalized convulsion. She was

taken out of the chair and placed on the operating room table where artificial respiration was begun. Patient's respirations ceased abruptly at 9:24 at which time her pulse was 180. At 9:15, one cc. of adrenalin was given in the left arm. Artificial respiration was maintained and the gas mask was placed over the face and oxygen administered. Patient so far had made no effort to breathe. Three and three-fourths grains of nembutal were given intravenously at 9:30 a. m. into the left jugular. Patient's color became better and a faint effort was noted at breathing. At 9:35, one c.c. of adrenalin was again given in the left arm and at the same time 1.5 c.c. of coramine was given. Artificial respiration was being maintained during this time with a gas mask delivering oxygen to the patient's face. Patient began to have occasional feeble, voluntarily, respiratory efforts. At 9:35 metrazol one c.c. was given and by 9:50 patient was breathing irregularly but spontaneously about 20 times per minute. Artificial respiration was discontinued but oxygen administration was continued. The pulse at 9:50 was 175, at 10 o'clock 165, at 10:56 156 and at 10:30, at which time she was removed from the operating room, the rate was 150. She was responding to questions in a dream fashion. Her convalescence after this crisis was uneventful.

CASE 3

This case represents another instance of cocaine toxicity: "Mr. W. S.[2] at 4:20 p. m., 20 c.c. of local anesthetic was injected into the hematoma of the fracture site. When I arrived in the operating room, about ten minutes later, the patient was quite nauseated, extremely pale, and said that he felt very sick. Investigation of the local anesthetic showed that by mistake a four per cent solution of cocaine hydrochloride had been injected, (12.6 grs.)

"A tourniquet was immediately placed above the patient's fracture site at approximately 4:35 and he was given six grs. of sodium amytal by mouth. At 4:45 his pupils were largely dilated and he complained of numbness and tingling of arms, face and thighs and a feeling of weight in his abdomen. He had vomited once. His blood pressure was taken at this time and the systolic pressure came through between 290 and 300 millimeters of mercury. The pulse rate was about 150, and was weak and irregular. He was given amyl nitrite to inhale and was watched carefully. The tourniquet was allowed to remain in place for thirty minutes after which it was removed every fifteen minutes with a five minute free period. His blood pressure was taken every fifteen minutes but he was being kept very quiet otherwise. His respirations did not become depressed except the rate and he was breathing with a deep sighing type of inspiration approximately 20 times per minute. There was never any apparent respiratory paralysis. At 6:15 he was still complaining of the heavy feeling in his abdomen and numbness of his thighs and face which he said felt as though the skin had gone to sleep. His pupils were still widely dilated. The pulse 136; blood pressure 245/165; temperature 99.2 rectally. Respiration, under stimulation of coramine, had increased to 28 per minute. At 6:30 blood pressure 250/130, pulse still irregular. At 7:00 blood pressure 210/170, pulse 100, temperature 100.4. At 7:30 blood pressure was 250/120, pulse 100. He was not feeling the effects of his creeping sensation as much as before, was reacting slightly more than formerly and had ceased perspiring about the head. It was noted that if his tourniquet was taken off just before his pulse and blood pressure were taken that they were more stimulated than after it had been replaced. At 8:00 his blood pressure was 185/100. The face was flushed but the pupils were still dilated. The pulse was regular with a rate of 110. At 8:30 the findings were exactly the same. He was given six grs. of amytal again and within thirty minutes was asleep. At 9:00 the pulse was 118 and volume good. Blood pressure 180/100. Respirations were even, regular and 28 per minute. At 10:30 temperature 100.4, pulse 116, respiration 24; blood pressure 200/110. 11:00 p. m. temper-

ature 100, pulse 100, blood pressure 190/80. Patient said he was feeling much better. At 1:00 a. m. pulse 100, temperature 100, blood pressure 190/80. At 5:00 a. m. pulse 80, blood pressure 180/90, respiration 20, temperature 99.4. He was complaining of pain in his injured arm for the first time and finally at 7:00 it was necessary to give him some morphine for his pain. He noticed the pain more severely during the time the tourniquet was off his arm than when it was on.

"The next morning his condition had improved considerably although he still did not eat any breakfast. During the morning his blood pressure varied from 170/100 gradually down until it reached 144/90. Respirations dropped to 16, pulse 68, temperature 99. The tourniquet was kept off for longer periods of time without any seeming ill effects on the patient until gradually by evening it was kept off his arm entirely. Arm was elevated on a pillow. During the succeeding night the pulse was 60, respiration was 20, blood pressure 120/80, temperature 100.3 He convalesced satisfactorily."

CASE 4

This represents another cocaine toxic crisis. H. J. D.[3] "A man, aged 70, weighing 168 pounds, had in error received three grs. of cocaine hydrochloride hypodermically. He was pale, his pulse was 120, and he had slight generalized twitchings. Oxygen carbon dioxide and strychine proved ineffective. The Extra-Pharmacopeia (Martindale and Westcott) suggests sodium amytal as an anticovulsant and detoxicant for cocaine poisoning. As no intravenous preparation of this drug was available, three c.c. of 10 per cent solution of evipal soluble were injected intravenously 45 minutes after the cocaine administration. At this time the patient had irregular twitchings of the voluntary muscles and of the diaphragm and complained of epigastric pain. The convulsions ceased and the patient remained unconscious for ten minutes. Forty minutes later the dose of evipal soluble was repeated to control fairly severe dyspnea and epigastric pain, and the effect was immediate. Another two c.c. were given half an hour thereafter, because the patient still had an occasional spasm and said that 'drawing his breath was heavy.' Within an additional 70 minutes he had so far recovered that he could be taken back to bed and made warm and comfortable, being meanwhile kept under close observation. His only complaint was that he felt afraid to go to sleep. He was given one-sixth grain of morphine sulfate, repeated two and one-half hours later. After a fairly comfortable night, the patient was free from any effects of cocaine poisoning."

SUMMARY

All surgery of any consequence whether for local or general anesthetic should not be an optional hospital procedure. Two lives were probably saved in our practice because of hospital atmosphere and facilities.

Toxic reactions must be prepared for in every instance where local anesthetic agents are being used.

Toxic crises have occurred about 1/1250 in our practice.

Necessary detoxicants (?) must be ready for cooperative use with alert professional adaptation butressed with adequate physical equipment.

All local anesthetic trays must include adequate physical equipment and drugs for combating a toxic crisis. We consider these conditions to be met with: 1-10 c.c. syringe; 1-2 c.c. syringe; three ampoules of adrenalin chloride MXV; one ampoule of nembutal, evipal, sodium amytal or one of the other intravenous barbital products; one ampoule of 10 c.c. sterile triple distilled water; one ampoule caffeine sodium benzoate, and one ampoule of coramine, metrazol or alphalobeline.

Mental faculties of the most agile character, yet cool under terrifying pressure, are likely to be the major factor in the recovery equation.

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RAT-BITE FEVER

(Case Report)

By JAMES E. FISHER, M. D.
New Cumberland, West Virginia

On July 17, G. S. Jr., male, aged three years, of Toronto, Ohio, was brought to my office with a badly swollen right hand, the result of a rat bite. The child had been asleep, according to the mother and was awakened when bitten. The child was visiting relatives here, in New Cumberland, West Virginia, and an aunt saw a large rat scampering away from the couch on which the child was lying. He was bitten eight days prior to my seeing him. At the time of examination, the hand was swollen, edematous with no fluctuation present. Treatment was instituted by the use of hot bichloride of mercury soaks in one to 2000 solution, repeated for 15 minutes at a time, as hot as the hand could bear. This was given three times a day. The child returned for observation on July 18. At this time the swelling had not subsided and the hand was red, hot and angry looking. An incision was made on the extensor surface and some pus evacuated. The hot soaks of bichloride were continued. At this time the child was running a fever of 100.4 F. On July 19 the hand was freely incised in two places, more pus evacuated and hot Carel-Dakin solution used. This treatment was continued for several days. On July 21, 12 days after the child was bitten by the rat, an erythematous rash was noticed on the chest, the temperature was 101.8 F., adenitis was present in the axillary and inguinal lymph nodes and there were mild gastrointestinal symptoms. A diagnosis was made at this time of rat-bite fever and neoarsphenamine was administered intravenously, 0.12 gm. being given, applying Young's rule of dosage. The day after the neoarsphenamine was given the temperature dropped to normal, the swelling in the hand began to subside, the exanthematous rash disappeared and the child was markedly improved clinically. Three days later the wound had healed and the child was well.

Rat-bite fever has been reported in Japan and a few cases have been reported elsewhere. The disease is extremely rare in the United States. It is felt that this is an authentic case as the rat was seen leaping from the bed and definite marks of its teeth were visible on the child's skin. No bacteriological examination was made in this case. The causative organism is a spirochete discovered by Kenzo Futaki and Kikutaro Ishiwara in 1915. The effect of a spirocheticide, neoarsphenamine, was striking in this case, after surgical measures failed.

MEDICINE CURE FOR ACNE

Nearly four million boys and girls in the United States have acne, declares Inis Weed Jones, in her article "Acne—the Plague of Youth" appearing in the October issue of *Hygeia*.

And acne does not have to be outgrown! Doctors know the cause and cure of it. But most cases are still left to the tyranny of time because acne more than any other ill has been surrounded by an atmosphere of ignorance, sex superstition and prejudice.

Part of the cure is to rid the minds of youth and their critics of these false ideas. It is not infectious; it is not transmissible to others. One can have good blood and still have acne. It bears no relation to any sexual disorder or neurosis; it does not resemble the lesions of syphilis.

Acne is primarily due to the fact that during adolescence, with its rapid and often uneven growth, the functions of the skin sometimes lag.

The following methods of correction are generally approved: An incredible amount of face washing by a technique designed, not for ordinary cleanliness, but to help get rid of the excess oil, and improvement in general health and living conditions will eliminate all but the stubborn cases of the disease.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Medical interest in a disease is apt to be proportional to its rarity or to the mystery surrounding its etiology, transmission or treatment. So ancient a malady as tuberculosis lacks the lure of novelty. Nevertheless its riddles still tempt the pathologist and the epidemiologist. Dr. James Alexander Miller brings to bear his profound scientific knowledge of tuberculosis and vast clinical experience in selecting the following problems for discussion and in suggesting lines of research which may direct us toward their further solution.

UNSOLVED PROBLEMS OF TUBERCULOSIS

Prior to Koch's discovery in 1882 opinion varied as to the infectiousness of tuberculosis. In 1873 the elder Flint wrote, "The doctrine of the contagiousness of the disease has now as hitherto its advocates, but the general belief of the profession is in its noncommunicability." With the bacterial origin recognized this opinion was swept away. At times the tuberculin test shows up to 100 per cent of a given population "infected" with tuberculosis, yet only one per cent or two per cent become seriously ill or die from superinfection. Other factors than infection alone enter into the problem as to why the disease develops in some and not in others. What are they?

Evidence is in favor of the doctrine that if exposed to adequate dosage of tubercle bacilli a previously uninfected child or adult becomes infected and shows a positive reaction. Last year Bezancon demonstrated that 18 per cent of children living in a heavily infected environment do not become positive. Others have found this true to a less degree.

Again we know that a certain resistance follows recovery from a primary mild infection. This is evidenced by the changed reaction to superinfection which rouses in the organism a fighting resistance not observed in the first infection. Further evidence of this acquired resistance is offered by the low incidence of fatal tuberculosis among the European Jews with their long history of racial infection. Recently, observations among a certain group of Indians appear to indicate that a considerable amount of such resistance may be acquired in the course of two or three generations.

Sensitiveness to tuberculin may fade out and be lost after apparently very mild infections or when a first infection lesion is totally cured. The reaction to subsequent infection is not then identical with an original first invasion but shows a diminished or altered resistance to such infection.

Another such unsolved problem in the realm of superinfection is that of exogenous or endogenous origin. Is the active and progressive disease following secondary infections due to the introduction of a new infection from without, or to an activation of an existing focus containing living tubercle bacilli? Proponents of the exogenous theory call attention to the "household character" of reinfections and the high incidence of disease in those children and adults in long contact with open cases and, therefore, presumably subjected to heavy and continuous dosage. Opponents, on the other hand, ask why, if inhalation is the cause of the disease do we not find multiple areas of superinfection instead of the usual limitation to a single locality in the lungs? A second question is why, when the first healed infection lesions show up so consistently in the middle or peripheral zones of the lung do we find superinfection with almost equal regularity in an apex? Inhalation infection is, at best, a chance and uncertain accident, while spread through lymph or blood channels is a most frequent and consistent process in any bacterial invasion.

Such lymphatic spread of pulmonary tuberculosis seems to have been proved beyond question by the careful studies of a number of noted pathologists. They believe this to be one definite step in the spread of the disease from an original first infection focus. It must be recognized, however, that this theory does not rule out the later bronchogenic spread of progressive phthisis when abscessed tuberculous areas break through and discharge pus into the bronchial channels.

Apical lesions revealed by the x-ray do not, necessarily, represent progressive disease. An adequate plan for the early discovery of such lesions, and their proper management, constitute two of the great unsolved problems of tuberculosis today.

NURSES AND PHYSICIANS

Interest in the problem of tuberculosis in youth has focused on its occurrence among nurses and medical students. Infection among young adults in the general population varies widely but outside of crowded cities the rate lies usually between 10 per cent and 30 per cent. Among fourth year medical students and nurses at the end of their training the figure approaches 100 per cent. Discussion still prevails as to whether young people entering occupa-

tions where infection is extremely probable are better off if they have weathered their first infection or if they have not yet been sufficiently exposed to the bacilli to show a positive reaction to tuberculin. Although opinions vary, some excellent men advocate vaccination with BCG for nurses reacting negatively.

While we may reckon this as one of our unsolved problems, good preventive medical practice has prescribed a method of meeting it. Extraordinary aseptic precautions are introduced in modern institutions for the training of both nurses and physicians. While this procedure has been far too tardy in getting started, already it is showing striking results. The practical importance of such a program is evident when one considers on the one hand the criminal waste of human material which needless exposure induces and on the other the injury to the nursing profession which might result if desirable candidates became reluctant to face so serious a health menace.

ALLERGY

Allergy or the sensitivity to tuberculin varies greatly in the same person from time to time. A series of tests with purified protein derivative has shown that the present decline in tuberculosis morbidity is associated with a marked decline in the intensity of allergy. On the other hand, it has been shown that morbidity, that is active phthisis, goes parallel with the incidence of hypersensitiveness, which is a point in favor of those who hold for hypersensitiveness as a reactivating agent.

The degree of allergy varies with the level of tuberculization in the environment, that is, differences in exposure by contact; hence it would appear that it is not the absolute but the relative level which counts. In persons living in a tuberculized environment, exposed constantly to infection, a permanent high level of allergy is maintained, and the exposure must be greatly intensified to produce a dangerous degree of hypersensitization. On the other hand, in those living in an environment of low tuberculization, tending to exhibit a low level of allergy, a much less intense exposure may produce hypersensitiveness. It would appear, therefore, that it is not the dose of infection alone but the previous degree of allergy which in any individual case indicates the danger of reactivation of lesions through hypersensitiveness. The practical importance of this situation is apparent; i.e., a given amount of exposure to infection may be serious for one person and quite harmless for another. It must, however, be borne in mind that change in the level of allergy is not the only factor involved.

Present knowledge tends to indicate that:

1. Tuberculin allergy is a relative phenomenon, which must always be considered in relation to the level of tuberculization in the environment or the extent of tuberculosis present in the individuals in question.

2. It is not the momentary level of allergy but its relative changes in either direction which are significant.

3. Infection sensitizes. Superinfection hypersensitizes. Hypersensitization may promote progression of recent lesions or reactivation of old lesions if it occurs too suddenly or becomes excessive.

Only a few of the unsolved problems of tuberculosis have been touched on. Obviously the campaign must be based on accurate scientific knowledge and this is still lacking in some important particulars. Consequently it would be a mistake to assume that the methods now employed are certainly sufficient to solve the tuberculosis problem. They must change in the light of new knowledge, and it may well be that the future holds unwelcome possibilities not visualized by those who consider that the goal would be in sight if the methods which appear adequate according to our present knowledge were thoroughly applied.

Some Unsolved Problems of Tuberculosis, James Alexander Miller, M.D., Jour. of the Amer. Med. Assn., Vol. III, No. 2, July 9, 1938.

HEEDLESS USE OF THYROID

The uncontrolled use of thyroid extract, if persisted in, as is often unwittingly the case in taking reducing "patent medicines" of secret formulas, will inevitably lead to a bodily breakdown, declares Dr. Robert A. Kilduffe in the second part of his series of two articles in the October *Hygeia.*

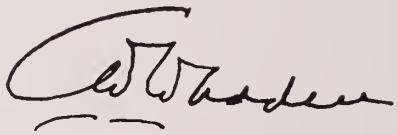
It is usually the heart muscle which, instead of running along quietly, has had to race at breakneck speed; and the after effect of overstimulation is fatigue. The administration of thyroid extract artificially increases metabolic activity to an excessive degree and so leads to the combustion of fat. This, therefore, is one method, and an effective one, of reducing one's weight, and it has been a popular ingredient of such patent medicines.

President's Page

"And there is no new thing under the sun."
Ecclesiastes 1:9.

"Some general rules should be adopted by the faculty in every town relative to the *pecuniary acknowledgements* of their patients, and it should be deemed a point of honour to adhere to this rule with as much steadiness as varying circumstances will admit. For it is obvious that an average fee, as suited to the general rank of patients, must be an inadequate gratuity from the rich, who often require attendance not absolutely necessary, and yet too large to be expected from that class of citizens who would feel a reluctance, in calling for assistance, without making some decent and satisfactory retribution.

"But in the consideration of fees, let it ever be remembered, that though mean ones from the affluent are both unjust and degrading, yet the characteristic beneficence of the profession is inconsistent with sordid views and avaricious rapacity. To a young physician it is of great importance to have clear and definite ideas of the ends of his profession; of the means for their attainment, and of the comparative value and dignity of each. Wealth, rank and independence, with all the benefits resulting from them, are the primary ends which he holds in view, and they are interesting, wise and laudable. But knowledge, benevolence and active virtue, the means to adopted in their acquisition, are of still higher estimation. And he has the privilege and felicity of practicing an art, even more intrinically excellent in its mediate than in its ultimate objects. The former, therefore, have a claim to uniform preeminence."—Chapter II, Section XV, Medical Ethics, 1803, by Thomas Percival, M. D. (1740-1804), Leake's Edition, 1927.



President.

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LOW COST STUDY GROUP

For lack of a better term, the above caption is used to designate the committee created at the special meeting of the Association Council at the Association headquarters in Charleston on October 2. The duties of the special committee are described fully in the Council Minutes which appear further along in this issue of the JOURNAL.

The Low Cost Study Committee, headed by Dr. R. J. Wilkinson, Huntington, held its first meeting in Huntington on October 6 with every member in attendance. The committee members are now at work securing statistical data in each county on the indigent, medically indigent and low income population, the facilities in each county for indigent and low income medical and hospital care, and suggestions from county society officers for improving such care. A second meeting will be held early in November, after the above material is gathered and correlated, and the committee will then start work on its report and recommendations for the December Council meeting.

Medical history is in the making at the present time. With the liberal stand of the American Medical Association in endorsing the greater part of the proposed National Health Program, it is generally conceded that the next few years will bring about a vast expansion in public health activities, in indigent medical service and in facilities for rural hospitalization. It was with the idea of keeping pace with this trend that the Association Council created the Low Cost Study Committee to work out a progressive medical program for West Virginia.

If we correctly interpret the present medical leadership in West Virginia, there exists a determination to exercise guidance and advisory control over all expansion in hospital, public health and indigent medical service facilities. We are sure that the West Virginia State Medical Association will keep three jumps ahead of the present trend and will be ready at all times to meet any situation that may develop.

THE 1939 PROGRAM

Within a short time the Committee on Scientific Work, charged with the responsibility of preparing the program for next year's meeting at White Sulphur Springs, will hold its first meeting. At that time the tentative scientific program will be drafted, not only for the general scientific assembly but for the sectional meetings as well. Representatives of the various sections will meet with the general committee when this work is started.

We present the above information for the purpose of advising Association members who desire to appear on the 1939 program, or who have program suggestions for next year, to get in touch with the Scientific Committee prior to its first meeting. Such requests or suggestions may be sent either to the Association headquarters, Charleston, or to Dr. W. R. Goff, Scientific Committee Chairman, 304 Fifth Street, Parkersburg. Names and addresses of the various section officers will be found on page 10 of the front advertising section of this issue of the JOURNAL.

In past years our scientific committees have had much difficulty with belated and tardy requests for program assignments. Many excellent suggestions have been turned down in the past because they arrived too late for consideration. For this reason we once more urge members to get in touch with Dr. Goff right away and not to wait until after the 1939 program is completed.

A TIMELY NEWCOMER

The American Journal of Medical Jurisprudence, Volume 1, Number 1, under the editorship of Dr. Frederick C. Warnshuis, Boston, has been received upon our desk. This newborn into the world of medical journalism certainly gives us a thrill of real pleasure. It is well edited, the scientific matter is excellent, and the format is very attractive. The magazine makes its bow as the official organ of the American Medico-Legal Association. We welcome its appearance because there is no other journal in North America with which we are acquainted covering this field.

We congratulate Dr. Warnshuis upon the excellence of his first number and warn him that he will have to keep hustling to keep succeeding issues up to the high level of the first.

SINUS DISEASES

Diseases of the sinuses are now almost always curable, and the notion that they are not, still held by many persons, is an inheritance from the past, when the causes and nature of the different types of sinus disturbances were not thoroughly understood and when nasal surgery was still in its early stage of development.

Thus Dr. Louis M. Pearlman writes hopefully in "Can 'Sinus' Be Cured?" his article appearing in the October issue of *Hygeia*.

The function of a sinus opening is to ventilate and, during periods of inflammation, to drain the sinus. Occasionally, however, infectious material is forced into the sinus through this very opening. This occurs when the pressure in the nose is greatly increased, as in violent blowing of the nose or in diving, especially into water polluted with infectious material.

To keep the sinuses in a healthy condition it is necessary that continuous ventilation be maintained through their tiny openings. If for any reason the opening of a sinus is clogged, the sinus becomes sealed and is deprived of its normal supply of fresh air. The little air that it contains is rapidly absorbed by the circulating blood, and a partial vacuum is thus formed. The mechanical effect of this vacuum is similar to that observed when "cupping" is applied to the skin.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

STATE HEALTH CONFERENCE

Among those who have accepted a place on the program of the State Health Conference are Miss Katherine Lenroot, Washington, D. C., chief of the Children's Bureau; Dr. C. Foard McGinnis, Richmond, Virginia, director of the bureau of Communicable Diseases, Virginia Health Department; Dr. W. Ross Cameron, Hagerstown, Md., deputy state health officer; Robert F. Lenhart, Washington, D. C., Bureau of the Census; Dr. M. V. Ziegler and Miss Mary J. Dunn, United States Public Health Service; and from Charleston, A. W. Garnett, director of the State Department of Public Assistance; H. K. Baer, state supervisor of schools; Dr. N. H. Baker, Dr. Donald L. Butterfield, medical adviser State Department of Public Assistance.

The conference will open at Bluefield at noon on Monday, October 31, with the registration. The first general session will open at 2:00 p. m. The second general session is scheduled for Tuesday at 9:00 a. m. and the third session on Wednesday at the same hour. Sectional meetings for doctors, nurses and sanatarians are scheduled for Tuesday afternoon, with the conference dinner that night.

DEMONSTRATION SYPHILIS PROJECT

The United States Public Health Service, cooperating with the West Virginia State Department of Health is sponsoring a field study project for the control of syphilis in Logan county. The purpose of this study is to develop modern methods for the diagnosis, treatment and management of syphilis, which will serve as a model demonstration project in West Virginia and adjacent states. This study will also demonstrate the most effective methods for the control of syphilis not only in West Virginia but in a given area in one county.

The program for this special study will be conducted by a full-time personnel consisting of a properly qualified venereal disease control officer, two public health nurses who have had special training in medical case work, and a clerk. The program has received the endorsement of the Logan County Medical Society.

TWENTY-FIVE YEARS AGO

(Taken from the November, 1913 Journal)

STATE NEWS

Dr. G. P. Daniel, a new member of the State Board of Health, who is practicing at Marshes recently met with a very serious loss in the destruction of his home and effects. He will have the sympathy of the profession.

Dr. O. D. Barker of Parkersburg is in Baltimore for the winter, taking postgraduate work.

Dr. W. S. Robertson is taking postgraduate work in New York. He is giving attention to the genito-urinary diseases and on his return to Charleston proposes devoting his time exclusively to this work, and dermatology.

* * * *

RITCHIE COUNTY SOCIETY

Pennsboro, W. Va.,
October 27, 1913.

Editor W. Va. Medical Journal:

Ritchie County Medical Society met at Harrisville, October 15, in special session, called by the president for the purpose of electing officers for the ensuing year.

Dr. H. M. Rymer read a very interesting paper on the "Use of Obstetrical Forceps", which created a very interesting discussion.

The officers elected for the ensuing year were: Dr. C. L. Boyers, Ellenboro, president; Dr. Rexroad, Harrisville, first vice president; Dr. Talbott, Harrisville, second vice president; Dr. L. P. Jones, Pennsboro, secretary-treasurer.

Meeting was adjourned to meet at the next regular meeting night in Harrisville, the third Wednesday in November.

Latimer P. Jones, Sec'y.

* * * *

FOR SALE

A long-established village and coal-mining practice. Collections good. One competitor, for a short time only. A growing and prosperous community, two railroads, insurance and railroad appointments. Will sell with or without residence. Reasons given.

"Doctor", Box 490, Charleston, W. Va.

* * * *

MEDICAL ETHICS UP-TO-DATE

1. If called by night to attend a stranger at a distance, dress quickly and go, never stopping to ask who wants you, or if the bill will ever be paid, lest you be counted inhuman.

2. Never insult a stranger by asking for credentials, nor a patient by asking for money—pounds and shillings are vernacular of bankers, lawyers, tradesmen, and "workers."

3. Never send a bill; patients will think you are hard up, but pay your bills promptly. Send a check, it looks better.

4. Be sure to mention the fact of your being overworked, and also cholecystitis, appendectomy, opsonic index, operative work, toxemia, words which impress the laity. Your wife must tell her friends how busy you are.

5. Never be friendly with any other doctor. It's unethical. If you think another doctor makes a guinea more a month than you do, cut him dead.

6. It is understood that you would not interfere with gestation, but it is well to tell of the large sums of money you have been offered and refused.

7. Do not expect the "glad eye" when you give the "cold shoulder."

(Excerpt from New Zealand Medical Journal)

Obituaries

DR. V. H. DYE

Dr. Victor Hugo Dye, 61 years of age, prominent Sistersville physician, died Tuesday, September 27, of general peritonitis.

Victor Hugo Dye was born February 25, 1877 at Cow Run, Washington County, Ohio, son of Joseph Riley Dye and Elvira Torner Dye. He obtained his academic education at Newport, Ohio, entering Marietta College at Marietta in 1892. In 1896 he enrolled in Maryland Medical College, receiving his M. D. there in 1900. In 1899 Doctor Dye married a Baltimore girl and moved to Sistersville, West Virginia, where he resided until his death.

Dr. Dye was a member of the Ohio County Medical Society, the State Association and the American Medical Association. Aside from his many professional activities, he was actively interested in many of the civic affairs of his town and county. He served as Tyler county health officer and city health officer at various times and was the B. & O. physician for the Sistersville territory; Major in the Medical Corps, National Guard; member of Board of Education and president of several civic organizations.

He is survived by his widow and a son, Dr. W. J. Paul Dye of Wolfeboro, New Hampshire.

County Society News

CABELL COUNTY

The October meeting of the Cabell County Medical Society was held jointly with the West Virginia Heart Association and the West Virginia Fellows of the American College of Physicians at the Governor Cabell Hotel, Huntington, on October 13, 1938. A full day was given over to an excellent program, which follows:

Morning session: Demonstration of heart cases at the St. Mary's Hospital by Dr. Sam Brown and Dr. Julien Benjamin, Cincinnati, and Dr. A. Carlton Ernstene, Cleveland.

Afternoon session: "Roentgenological Diagnosis of Heart Disease" by Dr. Sam Brown. "Common Errors in Cardiac Diagnosis," by Dr. Ernstene, and "Electrocardiographic Slide Demonstration" by Dr. Benjamin.

Evening session: "Surgery of the Heart," by Dr. Claude S. Beck, Professor of Surgery, Western Reserve University, Cleveland, with motion picture and lantern slide demonstration.

Dinner for members and out-of-town guests was served at the Governor Cabell Hotel between the afternoon and evening sessions.

Boyd F. Brown, *Secretary*.

HARRISON COUNTY

The Harrison County Medical Society was host society to the tri-county meeting of Harrison, Monongalia and Marion counties on the evening of October 6, 1938, at the Stonewall Jackson Hotel, Clarksburg. There were 65 doctors and guests in attendance.

The guest speaker for the occasion was Dr. George W. Crile, Jr., of the Cleveland Clinic, Cleveland, Ohio. He gave a very able discussion on "Recent Advances in the Diagnosis and Treatment of Thyroid Diseases," illustrated with lantern slides.

The legislative committee of the society reported that it is sending out questionnaires to county, state and national legislators to determine their attitude toward socialized medicine.

James G. Ralston, *Secretary*.

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of October 11 with a good attendance. The guest speaker was Dr. Edward M. Livingston, Assistant Professor of Clinical Surgery, New York University. His subject was "Abdominal Pain," illustrated with lantern slides and motion pictures. This was one of the most interesting presentations of the year and a liberal discussion followed.

A joint meeting of the Kanawha Medical Society and the Academy of Medicine of Parkersburg was held at the Spencer State Hospital, Spencer, on Thursday, October 20, with a good representation of both societies in attendance. Preceding the scientific program, members of the two societies were dinner guests of Dr. George W. Johnson at the hospital.

A. Spates Brady, Jr., *Secretary*.

LOGAN COUNTY

Following a dinner attended by the physicians and dentists of the county, the Logan County Medical Society held a joint meeting with the Logan County Dental Society. Dr. N. H. Baker, Charleston, president-elect of the West Virginia State Dental Association, presented a paper on "Medico-Dental Relations and Preventive Dentistry." This was a very practical paper and very ably presented. It is the opinion of our society that closer relations should exist between the dentist and the doctor and to further this relationship, we plan to have at least one joint meeting each year.

J. Lester Patterson, *Secretary*.

MERCER COUNTY

The Mercer County Medical Society met in the Directors' Room of the Municipal Building, Bluefield, Thursday night, September 22, 1938.

A letter from Dr. Walter W. Point, president of the West Virginia Maternal Health Federation, proposing the establishment of a birth control clinic in Bluefield was read. The matter was discussed and was favored by those present. A motion was passed that the matter be tabled for the October meeting when it is hoped a more representative attendance will be present.

The program consisted of two papers: "The Mental Side of a Child's Life" was read by Dr. R. V. Shanklin for Dr. R. R. Stuart who was out of the city. Dr. H. R. Connell read his paper "The Thymus Gland in Infants and Children." Both papers were discussed by the society.

O. G. King, *Secretary*.

MONONGALIA COUNTY

The regular monthly meeting of the Monongalia County Medical Society was held at the City Hospital, Morgantown, on Tuesday evening, October 4, with an excellent attendance. The members of the society were guests of Dr. E. F. Heiskell for dinner, after which the scientific program was presented.

The guest speaker of the evening was Dr. W. E. Hoffman, Charleston, who gave a most interesting talk on "Ruptured Uterus," illustrated with x-ray films and specimens. A liberal discussion followed.

Following Dr. Hoffman's talk, Mr. Joe W. Savage, Association secretary, addressed the society on "Socialized Medicine."

G. R. MAXWELL, *Secretary*.

OHIO COUNTY

Dr. Robert V. Funsten, Professor Orthopedics, University of Virginia, was the guest speaker at the October 14 meeting of the Ohio County Medical Society which was held at the Ohio Valley General Hospital, Wheeling. Dr. W. C. D. McCuskey, president, presided. Dr. Funsten spoke on "Some Problems in Fracture Treatment." Discussion was opened by Dr. John Rankin and Dr. Howard Weiler.

Dr. Arthur E. McClue, State Health Commissioner, spoke at the September 30 meeting of the society at Wheeling on the subject "Socialized Medicine."

Dr. George Crile of the Cleveland Clinic addressed the society at its October 29 meeting on the subject, "The Selection of Cases and the End Results in the Surgical Treatment of Essential Hypertension."

The remainder of the society's scientific program for 1938-1939 follows:

November 11—Dr. H. R. Sauder, Wheeling.

November 25—Dr. George M. Lyon, Huntington.

December 16—Dr. W. W. G. Maclachlan, Associate Professor of Medicine, University of Pittsburgh.

January 13—Dr. Edward J. Van Liere, Dean, School of Medicine, Morgantown.

January 27—Dr. James T. Priestley, Mayo Clinic, Rochester.

February 10—Dr. Karl Kornblum, Professor of Roentgenology, Jefferson Medical College, Philadelphia.

February 24—Dr. H. Hudnall Ware, Jr., Associate Professor of Obstetrics, Medical College of Virginia, Richmond.

March 10—Dr. Temple Fay, Professor of Neurosurgery, Temple University.

March 24—Dr. Leon Herman, Professor of Urology, University of Pennsylvania Graduate School of Medicine, Philadelphia.

April 1—Dr. C. W. Mayo, Mayo Clinic, Rochester, Minnesota.

April 27—Dr. Samuel Iglauer, Professor of Otology and Laryngology, University of Cincinnati.

May 5—Dr. E. L. Eliason, Professor of Clinical Surgery, University of Pennsylvania Graduate School of Medicine, Philadelphia.

R. W. LUKENS, *Secretary*.

PARKERSBURG ACADEMY

The regular monthly meeting of the Academy of Medicine of Parkersburg was held at the Parkersburg Country Club on the evening of September 7, 1938. The speaker of the evening was Dr. Franklin H. Reeder, State Registrar of Vital Statistics, who made an interesting talk on the work of his bureau. He stressed the registration of births and asked the cooperation of the Academy in the coming registration campaign. His talk was discussed by Dr. R. H. Wharton.

During the business session the Academy accepted an invitation from Dr. George Johnson of the Spencer State Hospital to meet there jointly with the Kanawha Medical Society on October 20. Various members participated in a discussion of the problems relating to medical service rendered indigent patients under the Department of Public Assistance.

Following adjournment, an excellent buffet supper was served, aided by a keg of beer. The social session and get-together was marked by general good fellowship and other diversions.

Dr. George Crile, Jr., of the Cleveland Clinic was the guest speaker of the society at the regular meeting on October 5 at the Camden Clark Hospital. He presented a most timely discussion upon "The Physiology and Pathology of the Thyroid Gland." Dr. Crile discussed the types of cases, using lantern slides to demonstrate, and he delineated carefully and concisely the points to be kept in mind in the diagnosis, treatment and surgery of the thyroid gland.

Dr. E. P. McCollough of the Department of Endocrinology of the Cleveland Clinic presented an

excellent resume of the more important features of the endocrine glands as related to the male and female sex glands, the thyroid and the pituitary gland. This was a most able presentation. The meeting was extremely well attended with many out-of-town guests from neighboring societies.

A special business session of the society was held at the Camden Clark Hospital on the evening of October 7. Dr. Karl L. Van Horn of Parkersburg was elected to membership in the Academy.

Dr. Welch England, member of the Association Council, reported on the October 2 meeting in Charleston. Dr. Wade reported progress in the publicity campaign against regimentation of physicians and presented a number of letters from local, state and national legislative candidates setting forth their respective positions regarding this matter. From the tone of the majority of the letters, it appeared that there was definite opposition to such a plan.

A proposal for the establishment of a prenatal clinic was received from the Parkersburg Junior League and was approved after considerable discussion.

Dr. Woofter discussed the proposed program of tuberculin skin testing and x-ray studies of high school students and stated that he had agreed to serve as director of this campaign providing he and the other physicians carrying on this work be permitted to proceed with no outside interference. This met with the approval of the Academy and the proposed campaign was endorsed.

J. L. Wade, *Secretary*.

POTOMAC VALLEY

The Potomac Valley Medical Society held its regular monthly meeting at Petersburg on the afternoon of September 22. The guest speaker was Dr. F. Garnett Cowherd of Cumberland, Maryland, who gave an interesting presentation on "X-ray Therapeutics."

The final meeting for the year will be held at Burlington with a dinner preceding the meeting, and election of officers for the coming year.

E. A. Courrier, *Secretary*.

RALEIGH COUNTY

The Raleigh County Medical Society held its regular monthly meeting on October 20 at Leslie's Diner, Beckley. Following the dinner, Dr. Vernon L. Peterson, Charleston, spoke on the subject of "Silicosis", illustrating his talk with lantern slides. This was a very interesting presentation and a general discussion followed.

The meeting was well attended. Dr. R. E. Edmondson of Pemberton was elected to membership in the society. The subject of immunization of children against diphtheria and smallpox was discussed and it was decided that the members of the society would assume the responsibility of immunizing the children under a plan similar to that adopted by the Kanawha Medical Society.

L. M. Halloran, *Secretary*.

BOOK REVIEWS

MENTAL THERAPY

Mental Therapy: Studies in Fifty Cases. By Louis S. London, M. D. Two volumes. Cloth. Price $12.50. Pp. 774. New York. Covici Friede, 1937.

This work, which has for a foundation a collection of case histories, is essentially Freudian. It consists of six parts, the first of which, "Metapsychology" describes the historical evolution of psychotherapy. The second part presents case histories of the minor psychoses, the neuroses as Dr. London calls them, and details very interestingly instances of such disturbances as hysteria, anxiety neuroses and compulsion neuroses. Part three is taken up with the sexual perversions, which the author classifies as neuroses. Various sexual perversions are illustrated by case histories one of the most interesting being an example of frottage. Part four covers the twilight zone between the neuroses and the major psychoses. Part five is devoted to schizophrenia and paranoia and the final part with the manic depressive psychoses.

All the case histories are very interestingly written, and are presented very clearly in detail. Dreams are stressed and the Oedipus complex looms large. One of the most valuable features of the work is a glossary of psychiatric terms.

The Daily Log for physicians for 1939 is published by The Colwell Publishing Company, Champaign, Illinois, price $6.00.

This very attractive log for physicians contains all the records necessary for a physician to keep definite track of his work. With it, he can keep his accounts and all the essential data he needs for income tax returns. The record of inoculations, obstetrics, surgery, narcotics, expense, and social security tax figures is provided for. The 1939 edition is the twelfth annual appearance of the Daily Log. It is really an excellent system for medical bookkeeping, properly bound and ready for use.

General News

COUNCIL MINUTES

A special meeting of the Council of the West Virginia State Medical Association was held at the Association Headquarters, Charleston, on Sunday, October 2, 1938. The meeting was called to order at 10:30 o'clock a. m. by Dr. G. R. Miller, chairman. Councillors present were Doctors Miller, J. R. McClung, R. J. Wilkinson, C. G. Morgan, B. C. John, Philip Johnson, B. S. Brake, Welch England, R. V. Shanklin, R. K. Buford, Ralph Hogshead and Fred E. Brammer; Dr. C. W. Waddell, president; Dr. Ray M. Bobbitt, president-elect; Dr. Walter E. Vest, A. M. A. delegate; Dr. W. P. Black, A. M. A. alternate delegate; Dr. T. M. Barber, treasurer; Dr. B. H. Swint, advisory committee chairman, and Mr. Joe W. Savage, ex-officio secretary.

Dr. Vest reported on the action of the special meeting of the House of Delegates of the American Medical Association in Chicago on September 17, 1938. He presented the report on the National Health program adopted by the House of Delegates which endorsed most of the phases of the proposed national health program with the exception of compulsory sickness insurance, which was vigorously opposed. Dr. Vest interpreted the action of the American Medical Association to mean that there would probably be a great expansion in facilities for indigent medical care, for hospitalization and in public health work.

Dr. England reported on socialized medicine schemes in England, France, Germany, Holland and Italy and gave his observations on the different systems practiced in these countries which he had personally observed.

Dr. Bobbitt pointed out that the average laymen know very little about socialized medicine and the issues involved and he felt that county society educational campaigns and contacts with candidates for office were of the utmost importance. He also spoke on the subject of existing fees, pointing out that the average fee for a major surgical procedure was much too high for the average low income worker. He expressed the hope that the Council would work out a suggested program for the various county medical societies and take steps immediately toward such a program.

Following this discussion, Dr. Vest's report was accepted with the thanks and commendation of the Council.

Dr. Shanklin moved the adoption of the following resolution:

WHEREAS, The House of Delegates of the American Medical Association in extraordinary session on September 17, 1938, unanimously voted to encourage county medical societies, with the approval of their state associations, to develop appropriate means to meet local medical requirements, and

WHEREAS, This action on the part of the House of Delegates of the American Medical Association may tend to open up an entirely new field of activity for the county medical societies of the West Virginia State Medical Association relative to prepayment or postpayment medical service plans or bureaus, and

WHEREAS, The West Virginia State Medical Association does not have any principles or policies formulated at this time to cover the approval or disapproval of county medical societies attempting to meet local requirements, now therefore

Be It Resolved, That the Council of the West Virginia State Medical Association hereby authorizes the president and president-elect of the Association to appoint a committee of not less than five Association members to formulate policies to meet the existing needs in this state; said policies when completed to be submitted to the members of the Council and if a majority of the Council members favor the policies submitted by the Committee, said policies shall become tentatively effective until officially approved at the next meeting of the Association's House of Delegates, and

Be It Further Resolved, That the Committee may, if it so desires, with the approval of the president and president-elect, add two or four laymen of its choice to the committee membership, and

Be It Further Resolved, That the Committee provided for in this resolution supplant the similar committee authorized by the Council in 1937 at the Clarksburg meeting.

The motion to adopt the resolution was seconded by Dr. Wilkinson and carried. The Council also voted to defray the necessary expenses of the committee in carrying out its work.

On motion of Dr. Waddell, seconded by Dr. Johnson, complaint against the staff of the Davis Memorial Hospital, Elkins, for alleged solicitation of medical and surgical patients in Harrison and

Marion counties was referred to the Barbour-Randolph-Tucker County Medical Society.

Dr. John reported that the Morgantown City Council had levied a municipal privilege tax on the incomes of the legal and medical professions in the city. He stated that the doctors and lawyers there were preparing to contest the ordinance and had secured good legal advice to the effect that the ordinance was illegal. He pointed out that the Morgantown tax, unless declared illegal, would probably spread to most of the other towns and municipalities in the state. Dr. John reported that the Morgantown attorneys would contribute their services in contesting the tax ordinance, and that the Monongalia County Medical Society had agreed to defray all costs involved. He requested the State Association to assist the Monongalia County Society in this proposed action.

On motion of Dr. Brammer, seconded by Dr. Buford, the Council voted to defray one-half of the expense incurred by the Monongalia County Medical Society in the above action, in an amount not to exceed two hundred dollars.

Before adjournment, Dr. Waddell announced for himself and Dr. Bobbitt, president-elect, the appointment of the following committee authorized in the foregoing resolution: Dr. R. J. Wilkinson, Huntington, chairman; Dr. John W. Moore, Charleston; Dr. Robert J. Reed, Jr., Wheeling; Dr. R. O. Rogers, Bluefield; Dr. R. V. Shanklin, Gary, and Dr. Philip Johnson, Fairmont.

SOUTHERN MEDICAL

The thirty-second annual meeting of the Southern Medical Association will be held at Oklahoma City on November 15, 16, 17 and 18, 1938, with headquarters at the Oklahoma Biltmore Hotel. The Skirvin Hotel will be headquarters for the American Academy of Pediatrics, the Huckins will be headquarters for the American Society of Tropical Medicine and the National Malaria Committee, and the Black Hotel will be headquarters for the Southern Association of Anesthetists.

A large number of reservations from West Virginia have already been received for this year's Southern Medical meeting and it is understood that arrangements are now under way to run a number of special cars out of Huntington carrying the West Virginia delegation. Hotel reservations in Oklahoma City may be secured by writing Dr. P. M. McNeill, chairman of the Hotel Committee, Ninth Floor, Commerce Exchange Building.

DIAGNOSTIC PROCEDURES IN TUBERCULOSIS

Four eminent specialists stand ready to bring to any medical society, large or small, a short, interesting symposium on the diagnosis of tuberculosis. A fine quality sound motion picture makes this possible during a period of twenty minutes. This service is available without charge through the West Virginia Tuberculosis and Health Association. Write to George C. Rowell, Executive Secretary, 330 Professional Building, Charleston, West Virginia, for a date.

Dr. Kendall Emerson, managing director, of the National Association opens the symposium, stating that the general practitioner sees the patient first and that the patient's future depends upon the doctor's skill and judgment.

Dr. Ralph S. Muckenfuss, director of the Bureau of Laboratories of the New York City Department of Health, demonstrates how sputum is stained and examined for the presence of the tubercle bacillus. A close-up picture shows each step clearly.

Then Dr. Esmond R. Long, director of the Henry Phipps Institute, makes the tuberculin test by the intracutaneous method with clear precision explaining step by step what he is doing.

Dr. Edgar Mayer, assistant professor of Medicine at Cornell University Medical School and formerly on the staff of Trudeau Sanatorium at Saranac Lake follows with a series of x-ray films. These are reproduced on the screen as clearly as in the viewing box. The order in which the films are arranged tells the story of the consecutive events that follow infection by the tubercle bacillus. Significant shadows are pointed out as Dr. Mayer interprets the film.

Summing up, Dr. Emerson uses a diagram which shows the correlation between early diagnosis and prognosis.

Viewing the film is equivalent of attending a clinic and receiving expert counsel on the diagnosis of tuberculosis.

A M A SCIENTIFIC EXHIBIT

Application blanks are now available for space in the Scientific Exhibit at the St. Louis Session of the American Medical Association, May 15-19, 1939. Attention is called to the fact that the meeting is a month earlier than usual, and applications close January 5, 1939. Blanks will be sent on request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

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INJURIES OF THE KNEE JOINT*

By C. B. PRIDE, M. D.
Morgantown, West Virginia

TRAUMATIC derangements of the knee joint are not uncommon. Vigorous games are responsible for a large number of them. The vicious tackling and blocking in present day football cause many such injuries. Basketball and track contribute their share. Automobile and industrial accidents account for still more. Consequently, in recent years, interest in their diagnosis and treatment has steadily increased.

The knee joint is formed by the flattened end of the tibia, the lower femur, and the patella. In addition to these are the anterior and posterior crucial ligaments, the two lateral ligaments, and the internal and external fibrocartilages. Also, encircling the joint are strong muscles and fascia, which give it extra support.

The structures which give the knee its main strength are, however, the lateral and crucial ligaments. The crucial ligaments prevent the tibia from slipping backward and forward on the femur; they also limit rotation of the tibia. The lateral ligaments prevent lateral movements of the tibia on the femur. The external ligament furnishes support for the outside of the joint, and is not attached to the external cartilage. The internal lateral ligament, a long band, much larger and stronger than the external one, gives the knee its chief lateral support. Any violent strain on it is transmitted to the internal cartilage to which it is attached.

The internal and external semilunar cartilages are crescentic fibrocartilages. They build up the periphery of the articular surface of the tibia and aid the lateral ligaments. The outer edge of the cartilage is much thicker than the inner edge, which lies free. The outer rim of the internal cartilage is attached to the capsule and internal ligament, whereas the external cartilage is not attached to the external ligament and its attachment to the capsule is not firm. Both cartilages are attached to the tibia by coronary ligaments. There is a wider range of motion between the external cartilage and tibia than there is on the medial side. This difference is due to

*Oration on Surgery, read before The West Virginia State Medical Association, White Sulphur Springs, July 12, 1938.

the fact that the coronary ligaments are longer on the outer aspect. This anatomic arrangement enables the external cartilage to avoid many dangers. Another reason why it is not injured so often as the internal one is that the range of outward rotation of the femur on the tibia is less than the inward rotation.

TWENTY-SIX OPERATIVE CASES

A brief summary of twenty-six operative cases showing pathological changes within the knee joint is here presented. Of this number twenty were due to tears or hypermobility of the internal semilunar cartilage, one was caused by a torn external cartilage, two resulted from cystic changes in the cartilage, two others were occasioned by foreign bodies within the joint, and one was produced by a torn internal lateral ligament.

Twenty cases were operated upon for internal cartilage derangement and one for a fractured external cartilage. Of this number eight were due to football injuries; three, to basketball injuries. One was due to an injury received while pole vaulting. The others were due to traumas received from falls and slipping. The injuries usually resulted from twists or blows causing internal rotation with the knee in a flexed position.

The original symptoms were severe pain in the knee over the injured cartilage, accompanied by swelling of the joint with synovial fluid and blood. But the most important symptom, which was present in practically all the cases of internal cartilage derangement, was the inability to extend the leg fully because of the blocking produced by the misplaced cartilage. The symptoms of a torn external cartilage were practically the same as those seen in the internal cases, with the exception that the pain and the tenderness were present over the external cartilage. For some reason blocking did not occur in the deranged external cartilage case. In the chronic cases the history of recurrent locking, effusion, giving way of the knee, and pain just medial or lateral to the lower border of the patella were usually sufficient to make the diagnosis. Tenderness over the anterior attachment of the cartilage was usually the only finding in the chronic cases, unless seen soon after a recurrence.

The diagnosis was made on the symptoms and findings in the acute cases and on the history in the chronic cases. The diagnosis of injury to the crucial and lateral ligaments can as a rule be made by the instability of the joint in the anterior and posterior, and lateral directions respectively, and by the history of severe trauma. X-ray examination may be necessary to rule out loose fragments of bone, fractures, or other pathological conditions.

TREATMENT

Treatment of torn or hypermobile cartilages is nonoperative or operative. In acute injuries of the knee the conservative treatment should always be used at first. In case the cartilage is misplaced and causes blocking, the treatment consists in manipulating the leg in order to reduce the cartilage. This manipulation is usually done by flexing the thigh and then acutely flexing the knee. If the internal cartilage is the offender the leg is abducted and rotated outward and then pulled out suddenly in complete extension. If the external cartilage is involved the same manipulations are used with the exception that the leg is rotated inward instead of outward. Several efforts may be necessary to reduce the fractured cartilage and occasionally an anesthetic may be needed. Quite often the patient himself is able to reduce the cartilage, especially in the chronic cases. In the acute conditions, after reduction has been established, a cast should be applied with the leg in comfortable extention for three or four weeks. Adhesive tape and bandages to the knee quite often are of benefit in the chronic cases.

In this group of twenty-one cases which were operated upon for the removal of injured semilunar cartilages, fourteen were college athletes, two were girls, and five were men who received torn cartilages in industrial accidents. In practically all, the initial symptoms occurred from six months to three years

before operative procedures were instituted. With the exception of one or two, all had had many recurrences of the original symptoms. One was in a cast for six weeks, and soon after the cast was removed the knee suddenly gave way when the patient made a misstep, and pain, effusion, and locking followed.

REMOVAL OF CARTILAGE

When the diagnosis of a deranged cartilage is fairly certain and conservative measures fail to permit the patient to continue his occupation or athletic contests, the removal of the cartilage is justified. A small incision starting at the lower border of the patella and carried downward and outward for a distance of two and one-half to three inches, gives excellent exposure to the semilunar cartilage. The cartilage is carefully inspected for tears and other pathology. It is freed at its anterior attachment and grasped with a heavy clamp or forceps. It is then carefully dissected away from the rim of the tibia and removed in its entirety if possible. Care should be exercised not to damage the lateral or crucial ligaments. If for some reason complete removal cannot be done easily, it is perhaps better to remove just the fractured or hypermobile portion. In this way, since there is minimum trauma, convalescence is easier. It is possible that the remaining portion may cause trouble later on, but not likely. A few of the patients had only a portion of the cartilage removed, and the results were good. If the cartilage is hypermobile and no tears present, it should by all means be removed for it can cause the same symptoms as a torn one. Also, the removal of hypertrophied infrapatellar fat pads and synovial villi has, when occasion demanded, proved advisable. Excessive manipulation of the leg and extensive exploration of the joint were avoided in these fairly well defined injured cartilage cases.

One patient was operated upon for the removal of a torn external cartilage. The anterior portion of the cartilage was detached from the coronary ligament and was folded back on itself. This patient had frequent attacks of effusion, pain over the external cartilage, and giving way of the knee. During all the recurrences, he never once experienced blocking of the knee joint.

In one athlete both internal cartilages were removed. The one in the left knee was injured in a football game, and was removed. About a year later, the internal cartilage of the other knee was fractured in a basketball game, and it was subsequently excised.

The pathology usually found were transverse, and longitudinal or bucket-handle tears. In a few cases the cartilage was hypermobile and not fractured. Transverse tears were more frequently encountered than longitudinal tears or hypermobile cartilages. Fat tabs and villi were frequently present.

There were two cases in which cystic changes were present in the cartilage. One case was that of a woman, aged forty-three, whose complaint was some stiffness of the right knee and a painful lump about one-half inch in diameter just below the joint line on the lateral aspect of the knee. The other case was that of a man, aged forty-eight, who complained of some limitation of flexion, and extension of the knee, and a small, tender lump below the anterior attachment of the internal cartilage. There was no definite history of injury in either case. In each case the cyst and cystic cartilages were removed with good results. The gelatenous material in the large cysts resembled that found in a ganglion. The exact mechanism of cyst formation is not known but probably degeneration of the cartilage takes place. No actual cysts were seen in the cartilages, but microscopic examination revealed them.

FOREIGN BODIES

There were two cases of foreign bodies. The first one was in a boy, aged twenty. A thirty-eight calibre bullet entered the left leg three inches below the knee. Seven months later the bullet worked its way into the joint and produced pain, effusion, and locking. Removal of the bullet from the joint relieved the patient of his symptoms. Another boy, aged twenty, first noticed pain in the left knee while running on the track team. Recurrent

attacks of pain, locking, and effusion occurred. One year after the original symptoms, two cartilaginous bodies were removed. One was free in the joint cavity and was about two centimeters in diameter and one-fourth centimeter in thickness. On the inner condyle of the femur was a wrinkled, reddish area from which the fragment had detached itself. Another smaller piece of articular cartilage was hanging from the inner condyle of the femur. This case was one of osteochondritis dissecans.

INJURIES TO THE INTERNAL LATERAL LIGAMENT

There was one case in which the internal lateral ligament was torn. The patient, aged twenty, was injured when he was struck on the outer aspect of his left knee in football practice. The knee became swollen, painful, and was held in flexion. The marked tenderness over the inner side of the knee was farther back than that seen in fractures of the internal cartilages. There was considerable lateral motion but no locking. After the acute symptoms subsided the ligament was repaired.

The following technique was usually used: Forty-eight hours before the operation, the knee, thigh, and leg were carefully shaved, scrubbed for several minutes with green soap, and then sterilized with iodine and alcohol. Sterile dressings were applied from mid-thigh to ankle. Two additional iodine and alcohol preparations were done—one the night before operation and the other in the operating room. The knee was draped and flexed over the foot of the table to a ninety degree angle. A tourniquet was applied at mid-thigh, and removed after the capsule was closed. A medio-lateral incision was employed in most of the cases. A posterior plaster splint was applied and removed the fourth or fifth postoperative day. The skin sutures were removed on the tenth day, at which time the patient was usually permitted to walk with the aid of crutches. In cases other than cartilage injury, the operative procedure and aftercare varied to suit the individual case.

The results in two of the twenty-six cases were not entirely satisfactory. In one there was considerable swelling, hemorrhage, and lateral motion of the joint after the operation. Further football injuries aggravated the condition. The patient has full use of the knee, but occasionally it gives way toward the medial side and effusion occurs, especially when he runs or suddenly turns. A further operation for the repair of the internal lateral ligament will be necessary in order to stabilize the joint.

The other case, that of a boy, aged twenty, deserves special comment because of the development of another condition. The patient fell from a truck and injured his right knee. His symptoms then and subsequently clearly pointed to a deranged internal cartilage. The cartilage was reduced by manipulation on at least six different occasions. About a year after the original injury, the internal cartilage, which proved to be fractured, was removed. An x-ray of the knee, taken the day before operation, showed no pathology. Two months later, however, a swelling occurred over the upper, inner tibia, and the knee became flexed to about forty-five degrees. X-rays and biopsy tests revealed this to be a new growth, and the pathological report showed the tumor to be a spindle cell sarcoma of the upper tibia. A mid-thigh amputation was subsequently done. The original injury in this case not only caused a fractured cartilage but probably was responsible for the osteogenic sarcoma.

The results in the other cases were good. There were no deep infections. Fourteen of the patients operated upon were athletes, and each was able to continue in the sport in which he formerly participated. These facts seem to indicate clearly that the removal of a deranged troublesome semilunar cartilage relieves the patient of his symptoms, and that with the proper technique the procedure is safe and not difficult.

ABSTRACT OF CASES

F. M., age 22, male. Twisted left knee in football game. Original symptoms: Unable to fully extend left leg, severe pain over anterior part of internal semilunar cartilage. Several recurrences. Duration: Two and one-

half years. Operation: June 6, 1928. Excision of internal cartilage. Pathology: Transverse fracture. Results: Good.

I. L., age 21, male. Struck on outer aspect of right knee in football game. Original symptoms: Intense pain and inability to extend the right leg; effusion was present. Has had two recurrences since original injury. Duration: Six months. Operation: June 8, 1929. Excision of internal cartilage and removal of fat tabs. Pathology: The cartilage was flattened and loose in anterior portion. Result: Good.

Fig. 1. A, Normal external semilunar cartilage. B, Normal internal semilunar cartilage.

E. S., age 21, male. Injured right knee in football game. Original symptoms: Some lateral mobility of knee, pain over internal cartilage, effusion and limited extension. Duration: Six months. Operation: December 27, 1929. Excision of cartilage. Pathology: Transverse tear of internal cartilage. Examination, December, 1937, showed relaxation of internal lateral ligament; occasional effusion and pain after exercise. Result: Fair.

G. D., age 21, male. Twisted left knee while pole vaulting. Original symptoms: Pain on inner side of knee, locking and swelling. Frequent recurrences. Duration: Six months. Operation: December 29, 1929. Removal internal cartilage. Pathology: Longitudinal fracture. Result: Good.

R. A., age 23, male. Twisted right knee while getting out of bath tub. Original symptoms: Sharp aching pain on inner side of knee and inability to extend leg. Has had two recurrences. Duration: Two and one-half months. Operation: April 7, 1932. Excision of internal cartilage. Pathology: Longitudinal fracture (bucket-handle) involving anterior half of semilunar cartilage. Result: Good.

H. R. K., age 53, male. Twisted left knee when foot caught between two pipes. Original symptoms: Pain, giving way of knee and effusion; inability at times to extend leg fully. Duration: Sixteen months. Operation: April 15, 1932. Excision of internal cartilage. Pathology: The anterior part of the internal cartilage was loose and flattened; no signs of fracture. Result: Good.

O. S., age 34, male. While working in mine wrenched right knee. Original symptoms: Swelling, pain and giving way of knee. Three

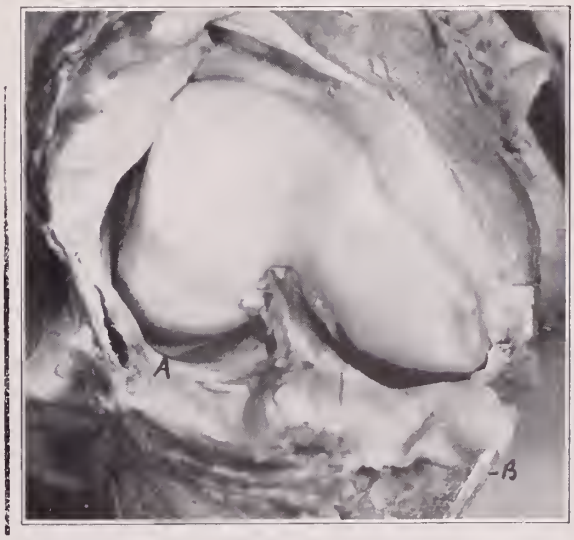

Fig. 2. A, Normal external semilunar cartilage. B, Internal lateral ligament.

recurrences. Duration: Six weeks. Operation: April 27, 1932. Excision of internal cartilage. Pathology: The anterior end of the cartilage was detached from capsule. Result: Good.

J. A., age 20, male. Injured right knee while playing football. Original symptoms: Inability to extend leg, effusion and marked pain. Has had numerous similar attacks. Duration: About six months. Operation: Feb-

ruary 25, 1933. Removal of fat tab and internal cartilage. Pathology: Bucket-handle fracture of cartilage. Result: Good.

H. Z., age 46, male. Twisted left knee while walking. Original symptoms: Inability to fully extend left leg, weakness and history of recurrence. Duration: Six months. Operation: March 18, 1935. Excision of internal cartilage. Pathology: Loose semilunar cartilage. Result: Good.

W. C., age 24, male. Slipped and fell while working in the woods. Original symptoms: Marked pain on inner side of right knee, locking and effusion. Duration: Three weeks. Operation: May 28, 1936. Removal of internal cartilage. Pathology: Bucket-handle fracture of cartilage. Result: Good.

G. E., age 18, male. While playing football right knee was twisted. Original symptoms: Marked pain in right knee with limited extension. Duration: Six months. Operation: June 16, 1936. Excision of internal cartilage. Pathology: Bucket-handle fracture. Result: Good.

L. L., age 20, female. Slipped and fell on left knee. Original symptoms: Limited extension, pain on inner aspect of left knee, effusion. Recurrence of symptoms. Duration: One year. Operation: August 19, 1936. Removal of internal cartilage. Pathology: Anterior third of cartilage was hypermobile. There was no fracture. Result: Good.

R. P., age 19, male. Injured right knee in football game. Original symptoms: Pain on medial side of right knee. Frequently his knee gave way and there was difficulty in extending the leg. Duration: Six months. Operation: December 21, 1936. Excision of internal cartilage. Pathology: Anterior part of cartilage was detached from capsule and flattened. Result: Good.

R. N., age 22, male. Right knee injured in football game. Original symptoms: Unable to extend right leg, effusion and pain, frequent recurrences. Duration: Two months. Operation: December 21, 1936. Removal of internal cartilage. Pathology: Transverse fracture. Result: Good.

R. M., age 22, male. Struck on left knee while playing football. Original symptoms: Pain, locking, swelling and giving way of knee. Had frequent recurrences of symptoms. Duration: One year. Operation: May 15, 1937. Excision of internal cartilage. Pathology: Detached anterior third of cartilage. Result: Good.

H. S., age 20, male. Injured left knee in football and basketball games. Original symptoms: Recurrent attacks of locking, swelling and pain on inner side of joint. Duration: Five years. Operation: June 5, 1937. Removal of internal cartilage. Pathology: Transverse fracture in anterior portion. Result: Fair. Occasional pain and effusion when injured in football practice. Advised to quit vigorous sports.

E. C., age 19, female. Right knee was injured when she fell from a horse. Original symptoms: Swelling of right knee, locking and pain on inner side. Duration: Six months. In plaster cast for four weeks. Recurrence of symptoms after removal of cast. Operation: June 12, 1937. Removal of internal cartilage. Pathology: Transverse tear. Result: Good.

W. W., age 18, male. Injured left knee while playing basketball. Original symptoms: Swelling, pain on inner side of knee and medial sliding of tibia, marked atrophy. Recurrence of symptoms. Duration: Two years. Operation: June 12, 1937. Removal of internal cartilage. Pathology: Longitudinal fracture. Result: Some pain in knee and weakness of leg. Marked atrophy around joint. There is a slight forward movement of tibia on the femur. Cannot tell at this time what the final result will be.

J. R., age 20, male. Injured right knee when he fell from truck. Original symptoms: Pain and effusion of knee joint with locking. Many recurrences. Duration: One year. Operation: January 27, 1938. Removal of internal cartilage. Pathology: Transverse tear of internal cartilage. Result: Poor. This patient later on developed osteogenic sarcoma of right upper tibia. Mid-thigh amputation of right leg was done May 4, 1938.

R. N., age 24, male. Wrenched left knee in basketball game. Original symptoms: Severe pain over internal cartilage with swelling and locking of knee. Duration: Six months. Operation: April 14, 1938. Excision of internal cartilage. Pathology: Hypermobility of cartilage in anterior portion. Result: Good. This patient had internal cartilage of opposite knee removed December 21, 1936.

Fig. 3. A, Transverse tear of internal semilunar cartilage.

H. R., age 39, male. Injured right knee while hunting. Original symptoms: Swelling of right knee and pain on lateral aspect, marked effusion; no history of locking. Many recurrences. Duration: Six years. Operation: January 17, 1938. Removal of internal cartilage and hypertrophied infrapatellar fat pad. Pathology: Detached anterior portion of external cartilage. Result: Good.

Mrs. G. S. D., age 43. No history of injury. Symptoms: Complains of painful lump above and in front of right fibula, pain and stiffness of right knee, limited flexion and extension. Painful and tender swelling below the joint line on the lateral aspect of right knee. Duration: One year. Operation: March 8, 1937. Removal of external cartilage and cyst. Pathology: Cartilage showed cystic changes. Contents of cyst transparent and gelatinous. Result: Good.

B. C., age 48, male. Thinks left knee was injured while lifting. Original symptoms: Small tender swelling below anterior attachment of left internal cartilage; some limitation of flexion and extension of knee; pain on inner side of knee. Duration: Three years. Operation: October 11, 1937. Removal of internal semilunar cartilage, fat tabs and cyst. Pathology: Cystic changes in cartilage. Result: Good.

R. B., age 20, male. Thirty-eight calibre bullet entered left leg three inches below knee and impinged on left knee joint. Seven months later the bullet worked its way into the joint and produced pain, effusion and locking. Operation: August 12, 1930. Removal of bullet from left knee joint. Result: Good.

E. G., age 20, male. No definite history of injury. First noticed pain in left knee while running on tract team. Symptoms: Recurrent attacks of locking and effusion. Duration: One year. Operation: November 27, 1934. Removal of two cartilaginous bodies. Pathology:

Fig. 4. B, Bucket-handle fracture of internal semilunar cartilage.

Osteochondritis dissecans. Fragment of cartilage, about two cm. in diameter and one-fourth cm. thick, was free in the joint cavity. On the inner condyle of the femur was a wrinkled, reddish area from which the fragment had detached itself. Another smaller piece of cartilage was hanging from the inner condyle of the femur. Result: Good.

E. J., age 20, male. Was struck across the outer aspect of left knee in football practice. Original symptoms: Swollen and painful knee and marked limitation of motion. Lateral mobility of the knee toward the medial side. Operation: October 16, 1929. Repair of internal lateral ligament. Pathology: Torn internal lateral ligament. Result: Good.

THE SURGICAL TREATMENT OF PEPTIC ULCER*

By IRVIN ABELL, M. D.
Louisville, Kentucky

SINCE Billroth, following his successful removal of a carcinoma by pylorectomy in 1881, directed his efforts to the cure of peptic ulcer by surgical measures, a voluminous literature, both medical and surgical, has been accumulated. It is now the concensus of opinion that the problem of the treatment of peptic ulcer is primarily a medical one, assuming surgical significance only with its complications, sequelae and intractable chronicity. The aim of treatment has been to secure a healing of the ulcer or its eradication with a correction of the pathological defects caused by it, together wtih the institution of such measures as in the light of knowledge and experience are believed to be of value in the prevention of recurrence. In the many types of operations that have been employed the underlying considerations have been to afford as far as possible a restoration of physiological function, free drainage of the stomach and a partial neutralization of stomach acids by intestinal alkalies.

The occurrence of perforations, bleeding and malignant degeneration in ulcers left behind has led to the conviction of the desirability of destroying or removing the ulcer or ulcers in addition to meeting these indications. The wide variation in the degree and character of pathology encountered in peptic ulcer is such that no single operation suffices to meet the indications in all cases. The attainment of success in its surgical treatment is largely dependent upon three factors: choice of operation, selection of cases for operation, and efficient preoperative and postoperative medical management.

For the purposes of discussion the operative procedures with which we have had personal experience may be classified as conservative and radical. The conservative operations comprised, (a) local excision with cautery or knife followed by suture; (b) local excision plus gastroenterostomy or pyloroplasty, (c) gastroenterostomy or pyloroplasty alone. The radical operations consisted in the removal of the ulcer bearing area by the Billroth I, Billroth II, Polya modification, or sleeve resection methods.

In making a choice of the type of operation to be employed in a given case primary mortality and end results must be the chief considerations. It is obvious that where resistance and vitality have been lowered by long continued disease, marked pyloric obstruction with dehydration and toxemia, inadequate nourishment or continued blood loss, the preoperative administration of fluids, glucose and blood transfusions are essential in the preparation of the patient for operation, and it is equally obvious that the safety of the patient will be enhanced by the selection of the most simple operation compatible with the correction or alleviation of the pathology presented. While the x-ray is an invaluable aid in diagnosis, the extent of the local pathology will be revealed by ocular inspection only. Quiescent ulcers will permit safer attack than those showing evidence of activity.

Perforation into the free cavity or into adjacent viscera; fixation of the duodenum, pylorus and stomach; the presence of in-

*Read before the General Scientific Session, White Sulphur Springs, July 13, 1938.

flammatory exudate, recent or calloused; obstruction due to cicatricial contraction; exudative or massive adhesions; location and number of ulcers, in varying combinations, present problems that are most satisfactorily solved by the selection of that operation best suited to the given case. The clinical observation that 90 per cent of gastric ulcers occur at or near the pylorus and along the lesser curvature led Rodman to advocate the resection of ulcer-bearing area when dealing with ulcers in this location. Time and experience have demonstrated the wisdom of this procedure particularly when the ulcers are of the calloused variety, and a determination of its employment will influence the choice of operation. Finally a consideration influencing the choice of operation is the efficacy of large resections in the reduction of gastric acidity. The observation that following resection of the ulcer-bearing area of the stomach there is a lowering of gastric acidity, and further, that freedom from recurrence is the rule, to which, however, there are exceptions, has led to the assumption in some quarters that where there is no acid there will be no ulcer. On this hypothesis Finsterer and his followers have practiced the ablation of the acid-bearing portion of the stomach, regardless of whether the ulcer be duodenal or gastric, with the avowed intention of producing anacidity. We have had no experience with such massive resections other than when necessitated by the location and character of the ulcer, believing the magnitude and extent of the operation to be prohibitive when compared with the favorable results obtained by more simple and less dangerous procedures. Furthermore, the presence of hydrochloric acid is essential to the proper physiological action of the stomach and its continued absence, howsoever produced, may be the forerunner of serious secondary disease. The selection of the type of operation to be employed is, and should be, the concern of the surgeon; the selection of the case for operation should be the joint concern of the internist and the surgeon. While unanimity of opinion is not yet to be obtained, accumulated experience and knowledge permit fairly definite indications for operative treatment. The three indications upon which all agree are: perforation, hemorrhage, and obstruction. Immediate closure of an acute perforation is the essential indication. Approximately 80 per cent of the acute perforations of duodenal ulcers occur on the anterior wall, and 90 per cent of the acute perforations of stomach ulcers occur on the lesser curvature of the prepyloric portion; perforation on the posterior wall is frequently sealed by adhesion of adjacent structures. Closure of the opening with superimposed layers of Lembert sutures and an omental fat graft suffices not only to control leakage but in a goodly percentage to secure healing of the ulcer as well. The employment of additional measures, such as excision or cauterization of the ulcer, pyloroplasty, gastroenterostomy or resection of stomach will depend upon the extent, character, and location of the local lesion and the general condition of the patient. The prime consideration in such catastrophies is the saving of life; this is accomplished by the stoppage of the leak. It may be stated as a general rule that the greatest safety to the greatest number prohibits doing more, yet, in the presence of marked pyloric or duodenal obstruction, granting that the condition of the patient permits, a pyloroplasty or gastroenterostomy may be done with reasonable safety, giving assurance of permanent relief and obviating a second operation. If the perforation occurs in a calloused ulcer on the lesser curvature, the infiltration surrounding the ulcer may not only prevent suture but may arouse the suspicion of malignancy as well, in which event excision or gastric resection will be indicated, as the condition of the patient and the judgment of the operator dictate. Perforations in which more or less successful efforts at closure have been made by nature will present in three clinical groups: one, rather extensive epigastric peritonitis with subhepatic or subphrenic abscess; two, localized peritonitis with recent inflammatory exudate matting together structures adjacent

to the perforations; and, three, chronic perforations in which the acute inflammatory phenomena have disappeared and the perforations remain sealed by close adherence of adjacent tissues. In the first two groups, the perforation itself, surrounded and sealed by acutely inflamed tissues, will neither demand attention nor permit surgical attack, the operative treatment consisting in the first group of drainage of the purulent deposits and in the second of gastroenterostomy. In the third group the location of ulcer and the structures to which it is adhered will determine the nature and extent of the operation.

HEMORRHAGE

Hemorrhage in both gastric and duodenal ulcers occurs in approximately 25 per cent of all cases, appearing usually in one of three forms: more or less constant seepage sufficient to produce anemia, single or recurring hemorrhages of appreciable amount as hematemesis or melena and massive bleeding, which immediately threatens the life of the patient. Ulcers that show constant seepage and recurring hemorrhage of appreciable amount which continue in spite of appropriate medical treatment should be subjected to operation. The type of operation employed should include the destruction of the ulcer, since such ulcers, when treated by conservative operations which do not include their eradication, show in many instances a definite tendency to further bleeding. The treatment which we have employed for massive hemorrhage consists of rest in bed, physiologic rest of the stomach, fluids and nutrition in the form of glucose administered by rectum subcutaneously, and intravenously, the exhibition of coagulants, chiefly fibrogen by mouth and subcutaneously, and whole blood transfusions. Under this regime the bleeding, as a rule, will cease, permitting further study of the patient and a determination for or against operation upon the associated symptoms, history and laboratory findings. Occasionally a case will be met in which such measures fail, when the control of the bleeding becomes an indication for immediate operation.

DUODENAL ULCERS

The patients with duodenal ulcers that we have selected for operation have presented one or more of four conditions: perforation, both acute and chronic, repeated or long continued hemorrhage, pyloric obstruction and long chronicity. A single massive hemorrhage is not regarded as an indication for operation; in the absence of the remaining conditions the chance for healing under medical treatment should be afforded until further bleeding or chronicity demonstrates its futility. Chronicity in spite of appropriate medical treatment is accepted as a failure of the latter and an indication for operation. For some unexplained reason duodenal ulcers do not show a tendency to malignant degeneration; hence it has been argued that chronicity alone does not justify resort to operation. The danger of perforation, the menace of hemorrhage, the possibility of obstruction and the continued discomfort produced by the chronic ulcer which proves resistant to an intelligently planned medical treatment afford sufficient grounds to negate this assumption. The types of operation which we have employed in the treatment of duodenal ulcer are: excision alone, gastroenterostomy alone, excision or cautery destruction of the ulcer combined with gastroenterostomy or pyloroplasty, and resection of the pylorus and duodenum. Resection of the ulcer alone was tried in a small series of cases and abandoned since three patients so treated showed recurrence within a year. Excision of the ulcer with a pyloroplasty, Finney or modified Mikulicz, has been employed for ulcers situated on the anterior wall near the pylorus, showing a minimal amount of duodenal distortion. For the satisfactory performance of this operation it is essential that the pylorus and duodenum be readily modilized so as to afford access for the necessary manipulation. In the cases conforming to these limitations it has proved a satisfactory procedure. With increasing experience gastroenterostomy is less frequently employed alone as the treatment of choice in duodenal ulcer. The destruction of duodenal

ulcers is not an imperative indication, but when local conditions make this a feasible and reasonably safe procedure it is advisable in that it at once gets rid of the ulcer, avoiding dependence on a slow healing process, and obviates the possibility of subsequent bleeding and perforation. The eradication of the ulcer is preferably accomplished with the cautery after the method of Balfour, in that the bleeding and operative trauma are decidedly less and the destruction of the ulcer just as certain. The cautery wound is closed with Lembert sutures and covered with an omental fat graft, after which a posterior gastroenterostomy is done. This conservative procedure will meet the indications in the majority of simple duodenal ulcers and the excellent results obtained place the burden of proof upon advocates of other methods to show just cause for such advocacy. In the presence of obstruction due to cicatrization in the duodenum and pylorus dependent upon ulcer of the duodenum gastroenterostomy alone affords beneficient results; the greater the obstruction the more certain and more complete the relief. Gastroenterostomy alone is also to be considered where marked periduodenal inflammation has anchored the gut to the liver, and in those cases where age, lowered vitality or obesity contraindicate any direct procedure. When the ulcers are multiple, and they are in from five to six per cent of cases; when situated on the posterior wall, difficult of access and so calloused as to render healing difficult; and when so situated the ulcer has perforated into the head of the pancreas with fixation of duodenum and pylorus to the latter organ, we have come to the practice of resection of the duodenum and pylorus. Ulcers presenting such pathology do not lend themselves to cautery destruction or excision with pyloroplasty; our experience with gastroenterostomy alone in such cases has been disappointing in that persistence of gastric discomfort, recurrence of bleeding, pancreatitis and pancreatic malignancy have been noted. It is true that the radical operation carries a more grave operative risk, but this is justified by the greater assurance of relief.

GASTRIC ULCER

The indications for the institution of surgical measures in the treatment of gastric ulcers comprise those which apply to duodenal ulcers; namely, perforation, hemorrhage, obstruction and chronicity, to which must be added the danger of malignant degeneration. While malignancy does not become engrafted on chronic ulcer with the frequency which some authors have stated, personal observation has afforded proof of its occurrence. Patients with frank cancer at the time of examination have given ulcer histories of long duration; patients upon whom in our earlier experience we had done gastroenterostomy alone for chronic gastric ulcer have returned years later with gastric carcinoma. This common observation of the tendency of chronic gastric ulcer to undergo malignant transformation would seem to render imperative the destruction or removal of the ulcers in the course of operations undertaken for their relief. The operations with which we have had experience are gastroenterostomy alone; excision of ulcer alone; cauterization or excision combined with gastroenterostomy; sleeve resection of the pars media, and resection of the pylorus, antrum, and such part of the pars media as may be necessary to include the ulcer-bearing area. The above mentioned observation of the occurrence of carcinoma in chronic ulcer treated by gastroenterostomy alone has led us to abandon such conservatism and in the cases selected for this procedure to supplement it with cauterization or excision of the ulcer. In four patients presenting chronic saddle ulcer of the lesser curvature, pars media, a sleeve resection was done. In two of these recurrence was noted and relief obtained by a subsequent gastroenterostomy. The cases to which the combined procedure of excision or cauterization combined with gastroenterostomy is applicable are those in which small, resectable ulcers are situated on the lesser curvature, or in the pars media, and all ulcers situated high on the lesser cur-

vature or posterior wall. Ulcers of the lesser curvature showing marked inflammatory deposit are best treated by sleeve resection with a gastroenterostomy, or by pyloric resection, since the defect left by excision or cauterization is such as to render accurate suturing difficult and to produce marked distortion and deformity. Ulcers with a crater of one cm. or less in diameter are rarely malignant, and are susceptible of conservative treatment; when the craters present larger diameters, the presence of malignancy is to be considered as possible, and unless one feels confident of his ability to distinguish by ocular inspection between simple chronic ulcer and ulcerated carcinoma, or ulcer with beginning carcinoma, the patient should be given the benefit of the doubt and radical treatment employed. Ninety per cent of gastric ulcers occur on the lesser curvature and posterior wall at the pyloric end of the stomach, the ulcer-bearing area of Rodman. The presence of inflammatory deposit in the stomach wall around the margin of the ulcer, the presence of perigastric adhesions or of sealed perforation into the liver, pancreas or gastrohepatic omentum, and the size of the stomach at this point make difficult, if not impossible, the employment of conservative excision or cauterization; the probability of failure of healing with a continuation of symptoms and the possibility of perforation, bleeding and malignant transformation, if gastroenterostomy alone is done, have led to the rather universal acceptance of pyloric resection as the operation of choice in such cases. The Billroth I gives a nearer approach to physiological restoration, when local conditions are such that it can be carried out; in the wider resections the Polya modification of the Billroth II has satisfactorily met the indication.

SELECTION OF PATIENTS

A proper selection of patients for operation and the use of good judgment in the choice of operation for the given patient combined with dietary and medical supervision for at least one year following operation, offer the sufferer from intractable peptic ulcer, its complications and sequelae an excellent chance for relief. Peptic ulcer may recur after any type of operation, being located at the former suture line, in new locations in the stomach and duodenum, and in the jejunum at or below the site of anastomosis with the stomach. Fortunately, this occurs in but a small percentage of cases, the cause for its formation being as elusive as that for the primary appearance. Other causes for failure are to be found in faulty operative technique; in leaving behind an infected gall-bladder or diseased appendix; in activation of an unremoved ulcer; in overlooking distant foci of infection; in the resumption of a faulty diet; and finally, it should be borne in mind that in the vast majority of patients presenting gastric symptoms, the latter are due to causes extrinsic to the gastric tract; granting the coincidental occurrence of peptic ulcer in such a patient, its treatment is doomed to complete or partial failure in so far as securing freedom from symptoms is concerned, unless the extragastric causes of dyspepsia can be eliminated.

TODAY'S ANESTHETIC

Modern methods of anesthesia do not rely on a single agent or even on a single method of administration, thus making the whole procedure immeasurably safer and more comfortable for the patient and relieving both surgeon and anesthetist of much anxiety. Dr. Robert A. Kilduffe covers this subject in his article "The Apple of Sleep" appearing in the November issue of *Hygeia.*

Ether is still widely used, chloroform to a lesser degree and most frequently a combination of substances. Ether then may be preceded by the administration of nitrous oxide, "laughing gas," which acts rapidly, ether then being given after the patient is unconscious.

Ether is also used in combination with carbon dioxide and oxygen, the proportions being exactly regulated and easily controlled by ingenious machines devised for the purpose.

In inhalation anesthesia the drug is inhaled, absorbed from lungs by means of the circulation and carried by the blood stream to the central station—the brain—which is then rendered ineffective. The carriers of gases in the blood are the red blood cells.

THE ADVANTAGES OFFERED BY AN ORGANIZED ANESTHETIC SERVICE*

By HENRY S. RUTH, M. D.**
Philadelphia, Pennsylvania

JUST a few months ago, a county medical society passed a resolution petitioning its state medical society, state hospital association, and the school of medicine in its state university to take action to improve the science of anesthesia. This is an example of but one of the many recent occurrences indicative of the mounting demand for a more efficient and scientific type of anesthetic service. Heretofore, these demands have emanated principally from the larger metropolitan areas and universities. This distribution of interest may be explained by the fact that these localities are usually better able to finance new ventures, and that the larger numbers of medical centers are located in the larger cities.

Today, the specialty of anesthesia has progressed beyond the stages of pioneer effort. It no longer implies the mere clinical administration of anesthetic agents. It has almost unbelievably enlarged its scope of activities. As a consequence, the advantages of an organized anesthetic service are as valuable and applicable to the smaller cities and communities, and, we hope to show you, as readily procurable as in the larger and more densely populated sections of the country. It is the object of this presentation to attempt to outline first, the advantages of a well organized anesthetic service, and second, how it is economically possible for these smaller cities and communities to develop such a service for their own betterment.

We have deliberately interpreted the term "organized anesthetic service" as one that embraces an anesthetic department that is both headed and manned by physicians, which physicians are devoting their entire or major attention to the specialty of anesthesia, and have been adequately prepared for its application in the modern conception of the term; or at a minimum, an anesthetic service that is at least headed by such an individual. When established as stated, its advantageous influence may be felt not only during the actual surgical period, but also before and after the surgery has been completed. In addition, as will be shown, numerous supplementary services will be provided.

Preoperatively, an anesthetic service stands ready to assume the responsibility for both the preanesthetic sedation and for the selection of the correct anesthetic agent and method for each individual case. Unfortunately, in spite of the numerous writings on the subject available today, preanesthetic sedation is still but slightly understood. Not infrequently, the non-anesthetist will consider this important factor adequately managed by prescribing a routine dose of some favored drug for every adult just before he leaves for the operating room. This routine dosage may be materially harmful for certain patients by the production of an injurious degree of preoperative depression, and for others will be insufficient to produce the desired beneficial effects. An anesthesiologist will visit each patient and individualize the problem in hand. He will first select the correct drug or combination of drugs. The available drugs are now so numerous that consideration of them for this purpose can constitute quite a study in itself. He will employ only drugs of whose pharmacological actions and limitations he is fully informed. He will then prescribe the correct amount of the selected drug or drugs for each individual. His estimation of dosage will be based largely on his conception of the probable basal metabolic rate of the patient. The higher the basal metabolic rate present, the larger will be the dosage indicated, because the majority of preanes-

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**From the Department of Anesthesia, Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania.

thetic sedatives are depressants to the metabolic rate. The factors in this respect which will be considered are age, presence or absence of pain, the emotional status, whether or not fever is present, and certain specific toxemias. In addition, certain physical factors will be taken into consideration, such as body weight, (when excess weight is not due to obesity) sthenicity, and the patient's habits with regard to drugs or alcohol. Consideration is finally given to the anesthetic agent which is to be administered. Nitrous oxide-oxygen demands the greatest amount of metabolic depression preoperatively, while regional, spinal and ethyl ether require decreasing amounts in respective order, and finally, cyclopropane, possibly, will allow of the least amount of these drugs with absolute safety.

SELECTION OF ANESTHETIC

The anesthetic agent is selected on a definite basis. Many are now available. The pharmacological characteristics of each of these, also, should be known in detail before its selection is to be contemplated. For this selection, the patient is first considered; his type, his habits, and the presence or absence of any complicating pathology or preoperative physiological disturbances. Secondly, the requirements of the surgical procedure play an important part in this selection. Thirdly, a sincere anesthetist will always consider his own qualifications and experience. Where there is an indication for either one of two or more agents, he should always and irrespectively select the one with which he is definitely familiar. Many agents are successful in some hands and not safe or satisfactory in others because of the varying amount of experience possessed by the anesthetist. Through the same process in certain situations many valuable agents are condemned through the inadequacy of the anesthetic personnel. Lastly, an ear is given to the surgeon's preference. An anesthesiologist is always ready, willing, and anxious to give satisfaction to the surgical end of the operating team, and consequently, where two agents are of approximately equal value for the patient and the procedure contemplated, the surgeon's preference is given the benefit in the choice. It is only when the surgeon's desires might have a deleterious effect upon the subsequent postoperative course of the patient that recourse is taken to consult with him to seek an agreement upon a more suitable agent. It is not the anesthesiologist's aim to usurp as his prerogative all affairs anesthetic, but merely to be an additional contribution toward the factor of safety and to the ultimate successful conclusion of the operative procedure.

OPERATIVE PERIOD

An anesthesiologist is defined as a physician who has been trained in all manners of pain relief. He should be equipped to administer with equal facility, anesthetics by inhalation, colonic absorption, or intravenous routes, and also be adept with regional and intraspinal methods. During the operative period, he will conduct the selected type of anesthesia in such manner as to cause the least deviation from the physiological normal, and at the same time provide a more acceptable operative field for the surgeon.

The results obtained from inhalation anesthesia are dependent to a great extent upon the knowledge of the fundamental sciences possessed by the anesthetist, in addition to his experience in inhalation anesthetic techniques. Although for many years this branch of the practice of medicine has been delegated largely to the non-professional technician, it is now believed that a broader knowledge is necessary to obtain the greatest beneficial effects from inhalation anesthesia than that which is required for many other forms. This claim may be confirmed by the fact that within certain limits, it appears that other methods decrease in popularity in direct ratio with the degree of efficiency of management of the inhalation techniques available.

Inhalation anesthesia means the induction of an anesthetic state by means of the respiratory act. Its inefficient management, then, will have a detrimental effect on the functions of respiration; namely, the intake of

oxygen and the output of carbon dioxide. I am certain that all of you are well aware of the ill effects of oxygen want. I am not as certain that it is generally understood how readily this condition may be produced by anesthesia, and when present, it definitely increases some of the deleterious pharmacological effects of certain agents as well. To recognize anoxemia, the presence of cyanosis cannot be relied upon, for under certain conditions it may exist in the presence of a normal color. It must be recognized by the physical signs it produces, in which physical signs the anesthesiologist should be well trained. The detrimental effects of carbon dioxide deficit and increased carbon dioxide tension in the blood stream are not as well known, but nevertheless definitely harmful. Because of the important bearing of these factors on the immediate postoperative course, it is the duty of the anesthetist to be able correctly to interpret any abnormal blood carbon dioxide levels and immediately to rectify them.

INHALATION LEVEL

It is usually possible to evaluate accurately the exact level of inhalation anesthesia by means of the currently accepted method of interpretation of physical signs. The next slide shows the divisions recognized. The majority of operations may be performed in either the first or second plane of the third or surgical stage. Nevertheless, it may be observed frequently that the third plane is employed needlessly, even though it has been estimated that fifteen minutes of anesthesia in full third plane will produce a circulatory depression of greater degree than two hours of first plane anesthesia.

An efficient airway is necessary for the proper evaluation of the physical signs of anesthesia. In addition, its improper maintenance creates unphysiological situations, although observations of carelessness may be observed in this respect almost daily. An airway that is not patent, decreases oxygen delivery to the lungs, and hinders carbon dioxide egress. Among the more serious effects is the production of pulmonary congestion, which brings into action the Hering-Breuer reflexes. The dyspnea produced by obstruction is not compensated by increasing the pulmonary ventilation even though the minute volume is increased to the patient's normal. A slower rate and larger volume are necessary for efficiency.

Mechanical assistance to circulation is also materially affected by respiratory obstruction. The normal descent of the diaphragm and negative intrathoracic pressure act reciprocally to increase the venous return during inspiration, with the result that the systolic discharge from the right ventricle is increased.

Mechanical metal or rubber pharyngeal airways are efficient down to the glottis but it is at the glottis that the greatest resistance to respiration exists, even when the cords are relaxed during inspiration. This resistance may be removed only by an endotracheal tube.

New agents require specific management dictated by the pharmacological characteristics possessed by the agent. Cyclopropane is an excellent example of this statement. When this agent is administered properly, with a full knowledge of its limitations as well as its many advantages, it has apparently proven itself to be quite valuable. On the other hand, when it is administered by the uninformed, definite harm may be produced.

CARBON DIOXIDE ABSORPTION

During the past ten years anesthesiologists have learned that the carbon dioxide absorption technique is of definite value. So successful have the results been with this method, that its use has been adopted by those insufficiently trained to employ it advantageously. The open method of administration of anesthetics had been popular over a period of many years, due to the fact that but little knowledge is demanded on the part of the administrator to produce quite satisfactory effects. The advantages provided by the use of the closed methods are many and varied and are far superior to those produced by the open method. The results with it, however, are not so satisfactory when the basic prin-

ciples are not sufficiently understood as compared to those provided by the more simple open methods.

Intravenous anesthesia with pentothal and evipal is rapidly gaining in popularity for certain of the shorter operative procedures and possesses definite advantages. It has been repeatedly pointed out that intravenous agents are particularly dangerous when employed by unqualified persons.

Spinal anesthesia is unquestionably simple to administer, but the dangers of delegating the observation of a patient under spinal to an untrained individual are too numerous to mention. Without an organized anesthetic service a surgeon is deprived of the benefits of the various regional blocks, unless he is able to apply them himself. Cervical plexus and brachial plexus blocks require training to institute, but are of great value in certain situations. Caudosacral block is the method of choice in many rectal clinics. Epidural anesthesia has been favorably reported upon by some writers. Many new local anesthetic agents and vasoconstrictors may still be considered in the experimental stages, but of these it appears that metycaine and cobefrin are of definite value.

Speaking in general, the anesthesiologist diagnoses any untoward reaction that may develop during the operative period and immediately institutes the proper treatment. Thus, the surgeon is not required to divide his attention between his manipulations and the condition of the patient, but will be able to concentrate entirely upon his own work. Anesthesiologists have studied the effect of posture upon vital capacity and other factors and will adjust or compensate for any extremes demanded by the surgery. The explosion hazard which is always present during the use of inflammable agents will be decreased by intelligent management.

SUPPLEMENTAL SERVICES

It would seem that an anesthetist who is adept in regional anesthetic methods may be the logical individual to perform diagnostic, prognostic and therapeutic nerve blocks. These have found to be of particular value in many conditions, such as angina pectoris, intractable pain of inoperable cancer, sciaticas, certain neuralgias and vasospastic diseases.

Anesthetic agents have been found of therapeutic value in certain conditions; for example, the use of the barbiturates and avertin in tetanus and strychnine poisoning. The anesthesiologist is best equipped to supervise this application.

Many institutions have found it advantageous and profitable to place gas and oxygen therapy under the supervision of the anesthetic department because of their knowledge of the absorption and transmission of gases. With such an arrangement, it has been noted that oxygen therapy is more frequently applied when indicated than when this service is inefficiently managed. There is less waste, also, which materially reduces its cost. One anesthetic department reports the cost of the equipment for this purpose, plus the oxygen at $3.50 per day per patient.

The principles and mechanics of gaseous interchange are necessary for the institution of effective methods of resuscitation. Again it has been found that the anesthetist is best equipped to carry out this function, even though the cause for the necessity for resuscitation be remote from the operating room. Familiarity with intravenous techniques have led some institutions to place intravenous therapy and blood transfusions under the direct control of the anesthetic service.

ECONOMICS INVOLVED

As touched upon in the opening paragraphs, the establishment of an organized anesthetic service has been somewhat hampered in some instances by the fear of its cost to both the patient and the institution. There has been, heretofore, a pronounced reluctance to discuss this phase openly, which we believe has had an unjust effect. Both sides of this argument would be better understood after free and frank discussion.

From the institutional viewpoint, it is true that some profit may be gained by the sale of anesthetic services by non-medical persons.

If institutions are willing and will continue to be permitted to so capitalize upon such practices at the sacrifice of the advantages offered, both the patient and the surgical service will be deprived of what has been repeatedly termed one of the most valuable advances in the past few years. Institutions should take cognizance of the reports which tend to show that the costs of anesthetic supplies are definitely and materially reduced by medical anesthetic services through elimination of waste, more efficient mechanical care, and attention to necessary details.

With regard to the patient, I believe it may be shown that the establishment of an anesthetic department can be initiated with but negligible increase in costs. In the average smaller city, it appears that the usual cost of surgery, hospitalization, and nursing care amounts to from $250.00 for private ward service to $500.00 for private care. The usual charge for the administration of the anesthetic is $10.00. If this charge would be raised to $15.00, then the available income from anesthesia would be raised 50 per cent and would be sufficient to attract medical anesthetists. It is difficult to comprehend a reluctance or inability on the part of any patient to be willing to have his costs increased but one to two per cent in the interests of his own safety and welfare, provided the advantages and additional safety factors so gained are fully explained to him, preferably by the surgeon.

SUMMARY

There has been submitted an outline in simple terms of some of the advantages of an organized anesthetic service to the surgical patient and the surgical staff. An attempt has been made to outline some of the supplemental services that are offered by anesthesiologists and how these may be of particular application in the smaller institutions which cannot have separate organized sections for the management of these features. Finally, attention has been brought to the fact that such anesthetic services may be procured by an increase of expense to the average patient amounting only to one or two per cent of his entire surgical investment.

SULFANILAMIDE IN THE TREATMENT OF TYPHOID FEVER

(Case Report)

By FRANK S. HARKLEROAD, M. D.
Beckley, West Virginia

S. G. White female. Age, 11 and one-fourth years, lying acutely ill in bed. Chief complaint, chills and fever; headache; loss of appetite and general malaise.

Onset: Past six days.

I was first called to see this patient September 26, 1937 in the early afternoon. Patient lived about eight miles in rural section where typhoid fever was endemic, up to the past three years. However, due to modern conditions, vaccination and better sanitation, typhoid fever cases were becoming less prevalent at this time. On examining the patient, my first impression was typhoid fever, due to the late summer season, symptoms and insidious onset. Physical examination was negative except a temperature of 104 degrees F. Urine and blood were collected on the second day for further laboratory study. Urine examination was negative. Blood Widal was a strong positive. It was now the eighth day following onset of disease. Patient had at no time been vaccinated against typhoid fever.

Treatment: Ice pack to head when temperature was 103 degrees F. or more. All cold water patient could be persuaded to drink. Diet: Buttermilk, toast, baked potato, broths, jello and custards.

At this time sulfanilamide (prontilin) being generally used for blood stream infection

and since typhoid organisms invade the blood stream and tissue fluids of the body, I thought of trying this drug. I informed her parents that I was using a new drug and for them to use precautionary measures as instructed. The drug (prontilin) sulfanilamide was first given on the third day of my treatment. This was about the tenth day following the onset. Temperature ranged from 103 to 104 degrees F., pulse 96.

Patient was given five grains of sulfanilamide every three hours so that patient was receiving six doses or 30 grains daily. Treatment was continued for five consecutive days at which time temperature was normal and remained normal. Patient was able to be up at the end of third week following onset with an uneventful recovery.

Typhoid fever is becoming rare; however, sporadic cases show up at times in various localities. I am merely passing this information on as a single case report so that other colleagues may give this drug further trial in the treatment of typhoid fever.

HYPERFUNCTIONING LESIONS OF THE DUCTLESS GLANDS*

By WALTMAN WALTERS, M. D., D. Sc., Division of Surgery
and
EDWIN J. KEPLER, M. D., Division of Medicine
The Mayo Clinic, Rochester, Minnesota

It was not until the beginning of the present century that the medical profession at large began seriously to consider the potentialities of the ductless glands in the maintenance of health and in the production of disease. In the beginning, endocrinology consisted essentially of observations made by clinicians. Clinical syndromes associated with pathologic processes were delineated and speculation (often remarkably shrewd and accurate) regarding pathologic physiology took the place now occupied by experimentation. The number of physiologists and biochemists interested in endocrine problems was then decidedly limited.

GLAND CONSCIOUSNESS

In recent years a remarkable change has taken place. Spurred on by clinicians, experimenters began to dominate the scene and observations made in the laboratory accumulated with indigestible rapidity. The enthusiasm of the researchers in turn rearoused the clinicians, with the result that surgeons, urologists, gynecologists, neurologists, pediatricians, old line internists, and general practitioners suddenly became "endocrine conscious" and proceeded to add their quota to the already overburdened literature. The pharmaceutical houses also proceeded to do their bit. The dispensing of hormones and near-hormones proved to be lucrative; innumerable glandular preparations, separate and combined, each with a different trade name and accompanied by extravagant claims as to its merits, popped up almost over night and were speedily put to use by the enthusiasts. All this hullabaloo made too good a story to be ignored by the press, which promptly took upon itself the task of making the public conscious of how its glands were behaving. So successfully was the public educated that it is not now uncommon for patients, especially of the neurasthenic neurotic type, to insist that they must have something wrong with their glands and that something be done about it. In spite of this poor beginning, however, endocrinology has resulted in brilliant achievements in diagnosis, therapy and pure science. Furthermore, chaos is gradually giving way to order, and there are indications that the present com-

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Some of the nonsurgical portion of this paper parallels manuscript prepared by Drs. Edwin J. Kepler and Edward W. Boland as Section VIII of the book by Dr. Wallace Mason Yater, entitled "Fundamentals of Internal Medicine." Since this paper was read, Dr. Yater's book has been published by D. Appleton-Century Co.

plexities of the subject will be greatly simplified in the future.

The glands of internal secretion, in conjunction with the autonomic nervous system, serve as coördinators and regulators of metabolism, growth, reproduction and other bodily functions involving the concerted and harmonious activity of groups of organs or of the body as a whole. They achieve this purpose by secreting into the circulating media highly specific chemicals known as "hormones" which probably act on specific receptors in cells or end organs. A number of hormones have bene prepared in crystalline form, notably thyroxin, epinephrine (adrenalin), insulin, various male and female sex hormones such as estradiol and testosterone, and the salt and water hormones from the adrenal cortex. Other hormones, such as pituitrin and parathyroid extract ("parathormone") have been highly purified but not crystallized, whereas still others, including practically all those obtained from the anterior lobe of the pituitary body are still relatively crude extracts. Whether or not these crystalline substances are really the same substances that the glands secrete or whether they are merely the active chemical radicals of the true products of the glands remains a moot and somewhat academic question. The general superiority of the crystalline and purified hormones for therapeutic uses needs no comment.

ORGANS WITH HORMONAL FUNCTIONS

The following organs are known to have hormonal functions: the pituitary body, thyroid gland, parathyroid glands, adrenal glands, islands of Langerhans and the gonads. Eventually it may be proved that the pineal body and thymus, and possibly the liver, spleen, and kidneys, should be included in this group. Various portions of the intestine likewise secrete hormones that coördinate the processes involved in digestion. These substances need not concern us at present.

The control of the endocrine glands remains a mystery, and assignment of this task to a "master gland," the anterior lobe of the pituitary body, by no means solves the problem. In the first place, in spite of the large amount of suggestive evidence which has been accumulated, there are still many formidable objections to the unqualified acceptance of this theory of a master gland. The multiplicity of anterior pituitary "hormones" and the paucity of types of cells that could produce them are only two of a number of objections that can be raised. Secondly, assuming that this idea of a master gland is correct, one cannot help but speculate as to what mechanism then controls this master gland, whereupon the problem becomes even more complex then it was before the pituitary body was canonized.

ADMINISTRATION OF HORMONE

In connection with this problem because of its clinical significance, the fact might be mentioned that the administration of large amounts of a hormone may cause atrophy of the gland that normally makes that hormone. Furthermore, as a rule glandular transplants do not "take" unless the animal was first deprived of its own corresponding glandular tissue; for example, transplants of adrenal tissue will grow only if the host has been previously adrenalectomized. These observations suggest that the stimulation of a hormonal secretion comes from a reduced concentration of that hormone in the tissues. Finally, recent studies on the pituitary gland do not justify the abandonment of the idea that variations in secretory activity of any one gland may take place independent of pituitary activity.

The fate of the hormones in the body also has yet to be solved. In some instances it would appear that they are oxidized and thus disposed of. In the case of the various sex hormones they appear to be eliminated in the urine, either in their original form or in conjugated forms. The presence in the urine of a substance with hormonal properties, however, does not prove that it was elaborated by the gland in the same form that it is found in the urine.

Diseases of the ductless glands are usually accompanied by quantitative, and possibly by

qualitative, alterations in secretory activity. The descriptive terms "hyperfunction" and "hypofunction" are used to designate, respectively, an overproduction and underproduction of hormone. The terms "dysfunction" and "malfunction" are often used loosely. Sometimes they refer to quantitative abnormalities of hormonal production, at other times to the production of chemically abnormal hormones, and at still other times to both qualitative and quantitative abnormalities in glandular function. In the case of the adrenal glands or pituitary body, where the gland is composed of two or more separate functional units, disease may be manifested by clinical pictures which suggest hyperfunction of one unit and hypofunction of the other. These mixed types of conditions may be exceedingly difficult to interpret on a physiologic basis.

For the purpose of brevity we shall confine our remarks principally to the surgical lesions involving the parathyroid glands and the islands of Langerhans, to certain tumors of the ovary and the interstitial cells of the testes, and to hyperfunctioning lesions of the adrenal glands.

HYPERPARATHYROIDISM (von Recklinghausen's disease; generalized osteitis fibrosa cystica)

As the name implies, hyperparathyroidism is a disorder resulting from increased function of one or all of the parathyroid glands. Clinically, hyperparathyroidism is almost always encountered in its chronic form. The basic lesion generally proves to be a hyperfunctioning benign or malignant adenoma of one of the parathyroid glands. Diffuse hyperplasia of one or more parathyroid glands has occasionally been found to be the etiologic factor.

The main pathologic features are a general and diffuse degeneration and absorption of bone. In long standing cases deposits of calcium may occur in practically all organs of the body, thus being responsible in a few cases for the formation of bilateral renal calculi. The symptoms for the most part depend on the duration of the disease and the organs affected. The presence of bilateral renal calculi should always lead to the thought that hyperparathyroidism may exist. In cases of hyperparathyroidism, blood tests will practically always show an increase in the serum calcium and a corresponding decrease in the serum phosphates. Plasma phosphatase is usually increased. The urinary content of calcium is increased. Only occasionally may a parathyroid tumor be palpated but, generally speaking, the presence of the adenoma is found only by exploration of the parathyroid glands. Removal of a parathyroid tumor stops the progression of the disease, allows healing of the bones to take place, and gives complete relief. In cases in which renal calculi are present, it is usually necessary to remove them surgically, particularly if they are producing symptoms of obstruction.

HYPERINSULINISM (spontaneous hypoglycemia)

Normally, the entire blood stream contains only about five gm. of glucose. This is constantly being depleted by oxidation and by its storage into glycogen or fat. The amount of glucose in the blood would be quickly exhausted if it were not constantly being replenished by the conversion of hepatic glycogen into glucose and by the absorption of glucose from the intestines. Even in spite of the continuous drain on the blood sugar and the sudden demands for glucose during exercise, the concentration of blood sugar remains constant within fairly narrow limits. The mechanism responsible for this constancy of concentration is still imperfectly understood, and unquestionably insulin is not the only factor. Of equal importance is the liver. This organ can be regarded as the source of blood sugar for its removal produces severe hypoglycemia. The rate of utilization of sugar by the muscles affects the level of blood sugar, and, clinically, there is reason to suspect that it may be influenced by the rate at which sugar is converted into fat. In addition, the blood sugar is influenced by the centers in the brain stem, by the thyroid gland, by the anterior and posterior lobes of the pituitary body, and by both portions of

the adrenal gland. Consequently, the amount of sugar in the blood at any one time should be regarded as a balance of all the factors which raise or lower its concentration.

Generally speaking, although hypoglycemia may be induced as a result of insulin therapy or may be caused by insufficiency resulting from lesions of the adrenal glands and the pituitary body, the hyperinsulinism with which we are concerned surgically is caused by benign and malignant tumors, or by hyperplasia, of the islands of Langerhans.

The symptoms of hypoglycemia include a host of phenomena which range from simple paresthesias of the lips and fingers to convulsions, maniacal behavior and fatigue states. The symptoms vary greatly in different individuals and in the same individual at different times, depending in part on the duration of hypoglycemia, and probably on the rapidity of change in the level of the blood sugar. There is no strict correlation between the severity of the symptoms and the level of blood sugar. Severe hypoglycemic symptoms sometimes occur in individuals with very little depression of the blood sugar, and marked hypoglycemia without symptoms is not infrequently observed in diabetic and other patients. Many patients with spontaneous hypoglycemia or hyperinsulinism often learn that the attack can be prevented by food and thereby eat at regular intervals in order to ward off such episodes. Before a positive diagnosis can be made, it is necessary to show: (1) that the attacks can be precipitated by abstinence from food; (2) that they are associated with a definite subnormal value for the blood sugar (generally 55 mg. per 100 c.c. or lower), and (3) that administration of glucose will relieve the symptoms. In some instances it may be necessary for the patient to fast twenty-four hours or longer before an attack can be produced by exercise.

TREATMENT

Hyperfunctioning tumors of the islands of Langerhans account for the hypoglycemic episodes in about half the cases of pathologic hypoglycemia. These tumors may be benign and have malignant potentialities, or else be frankly malignant. Most patients with severe disabling hypoglycemia should therefore be given the benefit of surgical exploration. Removal of the tumor will result in complete cure. If no tumor is found, a portion of the pancreas may be resected. Some patients have been benefited by this procedure, but in a number of instances hypoglycemic episodes have continued even after practically all of the pancreas had been removed. In such cases medical treatment must be resorted to. The feeding of carbohydrate at regular intervals throughout the day and night will usually control the attacks although it has no curative value. High fat diets, high protein diets, and injections of insulin to remove the normal stimulus on the islands of Langerhans have had beneficial effects in isolated instances.

THE GONADS

The gonads are derived from the same celomic epithelium that gives rise to the adrenal cortex. It is not surprising, therefore, to find that both organs have a number of properties in common; for example, the hormones of the testes, ovaries, and adrenal cortices are sterols with very similar structural formulae. In addition, hyperfunctioning tumors of the adrenal cortices produce clinical syndromes very much like those associated with certain tumors of the sex glands. Finally, the interstitial cells of the testes, the lutein cells of the ovaries, and the cortical cells of the adrenal glands have many histologic features in common. Unlike the adrenal cortices, the gonads are not essential to life and their removal from the body is not followed by changes comparable in magnitude or severity to those that ensue after removal of most of the other endocrine organs.

Most primary diseases of the testes are not accompanied by marked endocrine disturbances. Endocrine disorders of the testes occur only infrequently. When a hyperfunctioning tumor of the interstitial cells occurs before puberty, it may give rise to sexual, physical, and psychic precocity. The penis becomes greatly enlarged for the age of the patient

with proportionate enlargement of the seminal vesicles and the prostate gland. A beard, pubic hair and a deep voice may appear. Rapid but proportionate growth of the skeletal and muscular systems may accompany the growth of sex organs. A palpable tumor of the testis is generally to be found and its surgical removal leads to regression of genital size.

Chorioepitheliomas, seminomas, and teratomas do not give rise to endocrine symptoms. They are mentioned because the urine in such cases contains a follicle-stimulating hormone and produces positive Ascheim-Zondek and Friedman tests.

The "hyperfunctioning" tumors of the ovary with which we are concerned surgically are the granulosa cell tumors and the arrhenoblastomas. The granulosa cell tumors occur rarely and secrete large amounts of follicular hormone. In young children they produce precocious puberty and menstruation and cause early appearance of secondary sexual characteristics. In most cases the patients are women who are past the menopause. In such cases the excessive production of follicular hormone may produce postmenopausal uterine bleeding. The arrhenoblastomas are encapsulated tumors which are thought to originate from testicular rests in the ovary. On microscopic examination they also appear to have malignant characteristics. In contradistinction to the so-called granulosa cell tumors the arrhenoblastomas have a defeminizing or masculinizing effect. In extreme cases a woman who has previously been normally feminine becomes amenorrheic, the breasts flatten, a beard appears on the face, and hair develops on the thorax, abdomen and lower extremities. The figure may change to the more angular contour of the male and the voice may deepen. The clitoris becomes markedly hypertrophic. The absence of obesity, purplish striae, and hypertension, and perhaps the palpation of an ovarian tumor, help to distinguish the condition from adrenal cortical tumors and basophilic tumors of the pituitary body.

Tumors involving the adrenal gland may take their origin from the cells of the adrenal cortex which originates from the mesoderm of the wolffian body or the medulla which originates in structures giving rise to the sympathetic nervous system.

CORTICAL TUMORS

The most frequently occurring adrenal tumor is that involving the cortex. Several excellent summaries of reported cases have appeared in the literature. To the signs and symptoms thought to be pathognomonic of such tumors, Gallais has applied the name "Le syndrome génito-surrénal," and Krabbe, that of "adrenal hirsutism."

Since the gonads and the adrenal cortices have a common embryologic origin, it is not surprising to find that both structures have cells with common histologic characteristics and secrete hormones which have similar chemical formulas.*

The symptoms depend upon the age and sex of the patient at the onset of the illness, the type of tumor, the degree of its endocrine activity, and the duration of the disease. Adrenal cortical tumors occur most frequently among young adult women although in our series of seven cases in which operation was performed two of the patients were children; one was nine years of age and the other was two years. In twenty of the reported cases the patients were males and in fourteen of these cases the patients were boys.

When a hyperfunctioning tumor occurs after puberty the changes which tend to reverse the sex occur, such as virilism of women and feminism of men. By virilism of women is meant the growth of hair with masculine distribution, some beard or moustache, atrophy of the breasts, masculine habitus, cessation of the menses, atrophy of the reproductive organs, and hypertrophy of the clitoris. On the other hand, when the disease originates among children, precocious

*The chemical similarity between the members of the group of male and female sex hormones has been appreciated for some time. More recently it has been shown that crystalline compounds of similar chemical structures, which are capable of maintaining the health of adrenalectomized animals, can be extracted from the adrenal cortex.

puberty usually occurs. Among boys the precocious puberty is likely to be of the masculine type with the precocious development of external genitalia of the mature type. Among girls the puberty is heterologous, that is, it tends to progress along masculine lines with hypertrophy of the clitoris, deepening of the voice, masculine distribution of hair, and interestingly enough, sometimes with precocious menstruation. In one of our cases, the patient, who was a child, aged two years, had had two or three menstrual periods.

SIMILARITY OF SYMPTOMS

Difficulty in diagnosis arises from the fact that in some instances the symptoms resulting from adrenal cortical tumors may resemble closely those that occur in Cushing's disease (basophilic adenoma of the pituitary body). The latter disease occurs for the most part among young adult women, and in contrast to adrenal cortical tumors (which vary in their clinical manifestations) produces a rather constant clinical picture. In pituitary basophilism the clitoris usually is not enlarged but absence of this finding does not exclude a tumor of the adrenal cortex. At present there is no single clinical criterion which can be used to differentiate the two conditions. The consequence of this fact is that the presence of an adrenal cortical tumor should be excluded in all cases in which the symptoms of Cushing's disease are present. To our minds, this is most accurately done by exploration of the adrenal glands.

We feel that in case of doubt the adrenal glands should be explored surgically, provided the clinician is familiar with the early symptoms of acute adrenal insufficiency and if adequate facilities are at hand for treatment of this emergency should it arise. There are two objections to this viewpoint: first, an appreciable number of patients will be disappointed because no benefit results from the operation; and second, it has been stated that in cases in which advanced symptoms of basophilism are present there is considerable danger of infection. In our experience this has not interfered with postoperative progress in cases in which cortical tumors are not found; in two cases Cushing's disease was discovered at necropsy months after the patients had been dismissed from observation. Certainly there is little justification for the death of patients who receive roentgen therapy of the pituitary body when the lesion responsible for their symptoms is an adrenal cortical tumor which might have been eradicated successfully had the patient been operated on early in the course of the disease. At the same time, when it is desired, one can open the peritoneal cavity and examine the ovaries to exclude the possibility of masculinizing tumors of the ovaries (usually arrhenoblastomas) and very rarely, granulosa cell tumors which result in the male type of hirsutism, amenorrhea and hypertrophy of the clitoris. However, such tumors practically never cause diabetes, hypertension, osteoporosis, or the other incidental symptoms associated with adrenal cortical tumors.*

In children tumors and inflammatory processes in the region of the pineal body and contiguous structures may be associated with sexual and somatic processes. Finally, there are, in addition, many women who have varying degrees of hirsutism, hypertension and debility for which no adequate basis can be found.

MEDULLARY TUMORS

Although there are a variety of tumors which originate in the medullary substances of the adrenal gland, the most important surgically are the paragangliomas, which frequently are called "pheochromocytomas." They are benign in character. The similarity of origin of the sympathetic nervous system and the adrenal medulla explains paroxysmal hypertension, the characteristic symptom of these medullary tumors. Excellent results have persisted for many years following removal of adrenal paraganglioma, as reported by Mayo, Shipley, the Porters and Walters.[16]

Adrenal medullary tumors occur with much less frequency than those involving the

*The recent case reported by Norris is one of the few exceptions to this rule.

cortex and few cases have been reported in the literature. Paroxysms of hypertension accompanied by vasomotor phenomena such as pallor, tachycardia, headache and apprehension are the characteristic symptoms associated with adrenal medullary tumors. Sweating is another of the vasomotor phenomena which occurs in some cases, although sweating does not occur after an injection of epinephrine. Precipitation of these paroxysms is obtained by undue physical and mental exertion and they can be precipitated experimentally by the "cold test"[5 6] (the introduction of the feet or the hands in water at a temperature of four degrees C. for one minute). The appearance of the patient and the physical signs are of little help in making the diagnosis unless the tumor is of sufficient size to be palpated during abdominal examination or to depress the kidney abnormally, as shown by urographic examination; this depression was not evident in four cases observed at the clinic. In one case, which recently was reported by Borch-Johnson, the tumor had attained a huge size and weighed 3,000 gm.

Patients with hyperfunctioning adrenal medullary tumors withstand surgical procedures very poorly.[1 12] One of the characteristics of hyperfunctioning adrenal tumors is their tendency to cause sudden death. There are a number of instances on record in which the tumor was discovered accidentally at necropsy following sudden death after minor or major surgical procedures, such as extraction of a tooth, hemorrhoidectomy or amputation of a gangrenous extremity.

TUMORS OF THE ADRENAL MEDULLA

Owing to the relative infrequency of tumors of the adrenal medulla the possibility of their presence is not likely to be suspected. In one of the four cases seen at the clinic the diagnosis was made before operation and in another case the tumor was found following the unusual persistence of hypertension subsequent to bilateral splanchnic resection. In the third case, which was reported by Dr. C. H. Mayo, the tumor was suspected preoperatively and was found at abdominal exploration. In these three cases the patients survived and no further paroxysms of hypertension have occurred. In the fourth case the tumor was found at necropsy. In one of these cases the hypertension was somewhat continuous rather than paroxysmal. It must be remembered that paroxysms of hypertension occasionally may occur in the absence of medullary cortical tumors. We have seen one such case in which the only important postmortem finding was petechial hemorrhages in the pons.

GANGLIONEUROMAL TUMOR

Thus far, we have referred to the most important surgical lesions of the adrenal medulla, namely the paragangliomas, which are benign in character. Another benign tumor, the ganglioneuroma, produces no characteristic clinical symptoms and is usually found unexpectedly at necropsy. Malignant tumors which involve the adrenal medulla are the neuroblastomas which metastasize early to the liver and lungs in the adult and to the skull and long bones in children. The diagnosis of these lesions is usually made only after metastasis has occurred. Surgical treatment directed toward their removal is without benefit on this account. The usual preparation of patients for surgical procedures is all that is required preliminary to operation in cases of adrenal medullary tumors. In cases of hypertension in which a tumor of the medullary portion of the adrenal gland has been suspected but not found on exploration, Craig and Walters have been dividing the major, minor, and lesser splanchnic nerves as they descend through the diaphragm and have been resecting a portion of the celiac ganglion. In addition, the lumbar sympathetic trunk also has been removed at the same time.

The treatment of tumors of the adrenal gland is, of course, surgical removal of the tumor. At The Mayo Clinic seven cortical tumors and three medullary tumors have been removed without any mortality.[17 18] Two of the cortical tumors were very large and weighed 600 gm. and 800 gm. respectively,

while the others averaged approximately 10 to 15 gm. and measured two to four cm. in diameter. Although microscopic examination showed early malignant changes in all of the cortical tumors, in five cases the tumor was definitely encapsulated and recurrence has not taken place. In the two cases in which the cortical tumors were very large, penetration had extended beyond the capsule; the growth was attached to the diaphragm in one case and to the inferior vena cava in the other case. In both cases the lesions were malignant; there were signs and symptoms of recurrence and both patients died within two years after the operation. The three medullary tumors which were removed were encapsulated and benign.

POSTOPERATIVE CONTROL

The most important factor in surgical therapy of the cortical tumors is the anticipation, prevention and control of postoperative adrenal cortical insufficiency. This consists essentially of the preoperative and postoperative administration of potent extracts of the adrenal cortex* and paraenteral and oral administration of adequate amounts of fluids to which have been added solutions of sodium chloride and sodium citrate, and the administration of a diet that is low in potassium. These procedures tend to control the impending adrenal cortical insufficiency which has probably been responsible for the high mortality (50 per cent previously reported by Lukens and his associates, by Cahill and his associates and by Scholl). The method outlined is essentially that which, at the clinic, has been found to be effective in controlling various degrees of adrenal insufficiency in Addison's disease and has been used in all of our cases of suspected adrenal cortical tumors. Its effectiveness is illustrated by operative recoveries in seven cases; in two of the cases the adrenal glands on the opposite side were found to be atrophic.

Although transthoracic, transpleural and retroperitoneal approaches to the adrenal glands have been carried out, in our opinion the approach which gives the best opportunity for minute and careful inspection of the gland is through a posterolumbar incision similar to that used in exposing the kidney. After the fascia of Gerota has been incised, the perirenal fat is reflected from the upper pole of the kidney and the kidney is retracted downward; this exposes the inferior and posterior aspects of the adrenal gland. It is possible in this manner to study the gland accurately from every side without disturbing the circulation. Care is taken to prevent injury to the blood vessels which enter the adrenal gland on its mesial and posterior aspect. Although we have seen one case of small multiple adenomas, minute in size, in other cases adenomas have been recognized grossly with ease; these have varied from two to fifteen cm. in diameter. When larger tumors are present, practically the entire adrenal gland may be thinned out and destroyed, with the exception of a fringe a few millimeters in length, which can be recognized by its brilliant yellow color as being adrenal cortical tissue. It must be remembered that on the right side the adrenal gland will be found to be in direct contact with the inferior vena cava. Usually, the blood vessels supplying an adrenal tumor are much larger than the blood vessels which supply the normal adrenal gland. On this account, care must be taken to ligate them accurately.

*We have been fortunate in having at all times an ample supply of potent extract prepared by Kendall. We have not had any recent first hand experience with any of the commercial preparations. Before using any one of the commercial preparations one should have had, if possible, some experience with its use in the treatment of acute adrenal insufficiency as it occurs in Addison's disease. The dosage necessary may be considerably larger than that recommended by the manufacturers.

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A REPORT ON A HOSPITAL SERVICE ASSOCIATION AFTER FIVE YEARS OF CONTINUOUS OPERATION

By R. O. ROGERS, M. D.
Bluefield, West Virginia

At its recent annual meeting in Dallas the American Hospital Association reported 2,000,000 subscribers enrolled in approved hospital service associations and made mention of a membership increase at the rate of more than one million per year. The various associations make it possible for the public to purchase hospital care on a periodic payment plan and satisfy, in part, the present and normal trend of a wider distribution of the uneven and unpredictable cost of medical care. If membership, as the service organizations seek to do, could include the entire wage-earning class, a considerable part of the problem of medical care would be solved.

Several hospital service associations are already in operation in West Virginia and others are in the process of being organized. The Bluefield plan has been in continuous operation since 1933, and the experience developed over a five year period may be worth while in the organization of plans in other areas. The local plan has a good many features to commend it, but it also has serious defects, and this report deals with the defects as well as the commendable features.

The organization is the usual non-profit corporation, and the by-laws and the approved application constitute the contract to provide hospital care. A registration fee of $1.00 is charged for an applicant who is a member of a payroll group and $2.00 is charged in the case of an individual. Membership is for a year and is payable in monthly installments as follows:

Individual Member	$.90
Each Adult Dependent	.90
One Minor Dependent Child	.30
Two Minor Dependent Children	.50
Each Additional Dependent Over Two	.10

"Adult dependent" is construed as meaning a wife or husband or any other person over 18 years of age. "Minor dependent child" is construed as meaning any child under 18.

In case of sickness or accidental injury and on the recommendation of a duly qualified physician, a member may receive hospital care in a private room ordinarily costing $5.00 per day. Hospital care includes otherwise board, general nursing care, routine dressings, and such medications as are ordinarily dispensed in a hospital (but not serums and vaccines and orthopedic appliances), use of operating room, anesthesia, and all diagnostic x-ray and clinical laboratory examinations. X-ray and clinical laboratory examinations

are provided even though the subscriber is not actually admitted to the hospital, but provided such examinations are deemed necessary by an accredited medical attendant.

Hospital care in the hospital is furnished each subscriber or dependent on one or more admissions up to and including 21 days in any one membership year (practically no restrictions until January 1, 1938). There is a discount of 25 per cent for room and board above the 21 day limit. There is no limit to out-patient service.

EXCEPTIONS

Service is not furnished in the case of (1) injuries covered by Workmen's Compensation and by automotive liability insurance and injuries occurring in line of duty for which the employer provides hospitalization; (2) injuries caused by or resulting from alcoholic intoxication and injuries received in fights; (3) mental disorders, insanity, alcoholism, and drug addictions; (4) quarantinable and contagious diseases; (5) acute venereal diseases; (6) any disease which has been diagnosed as incurable; and (7) pulmonary tuberculosis except for diagnosis.

Obstetric patients may become members at any time, and the only cost is 80 per cent of the cost of the room selected. The days taken up with delivery in the hospital are not charged against the maximum of 21 days for illness in a membership year.

In case of accidental injury or emergency sickness occurring outside the local area and requiring hospitalization, a member is reimbursed at the rate of $6.00 a day as long as he has to remain in the foreign hospital, but in no case to exceed ten days.

The section was a poor one to operate in because such a large part of the population is included in the contract arrangements already in vogue for caring for the mining population. Members, as a consequence, had to be recruited from small businesses and professional and semi-professional groups in Mercer and McDowell counties. In only a few instances has it been possible to include whole payroll groups, and in most cases only a part of a group is included. A good many individuals were allowed to join on a statement that no hospital service at the time was contemplated. The proposition accordingly has been purely voluntary insurance. In spite of these handicaps, the association has grown to considerable size and the member hospitals have fared well, as the following data for the year 1937 will show.

The average number of members or people protected was 10,972, and they were distributed as follows:

Principal subscribers	4,226	or 38.5%
Dependent wives	2,630	or 24%
Dependents under 18 years	3,340	or 30%
Dependents over 18 years	776	or 7.1%

It is of interest to note here (for comparison) that the service was distributed in the following ratios:

Principal subscribers	38.4%
Wives	40.1%
Dependents under 18	12.7%
Dependents over 18	8.8%

The service corporation has an agreement with six full participating hospitals to pay bills for services rendered only to the extent that available funds will permit. Each hospital follows a schedule of rates and fees. (See schedule). In this way, the combined approved bills of the six hospitals for the year (1937) amounted to $101,829.50. Available funds amounted to $76,372.13 and paid 75 per cent of the bills.

The corporation's total receipts for the year and disbursements were as follows:

Income:	
Registration Fees	$ 1,871.00
Monthly Dues	92,078.38
Interest	26.74
Total Income	$93,976.12
Disbursements:	
Administration (16.3%)	$15,331.73
Foreign Hospitals (under Sec. 9 of article 6 of the By-Laws)	899.20
2 Colored Hospitals (on flat rate of $5.00 per day)	865.00
Refunds	202.62
Added to Surplus	200.44
Carried over to 1938 Hospital Fund	105.00
Distributed to 6 Full Member Hospitals	76,372.13
Total Disbursements	$93,976.12

The total distribution to the six full member hospitals was for the following services:

Room and Board (regular patients)	$41,797.13	or	54.7%
Room and Board (obstetrical patients)	2,493.00	or	3.3%
Operating Room	4,140.00	or	5.4%
Anesthesia	4,023.75	or	5.3%
X-ray	13,245.75	or	17.3%
Laboratory	10,672.50	or	14%
Total	$76,372.13	or	100%

It is of interest to note, that of the $76,372.13 distributed to the six full participating hospitals, $16,075.50 of this amount was for services to patients who were not actually admitted to hospital (out-patient service.) A further analysis of the $16,075.50 so distributed shows that use of operating room took up $465.00, anesthesia $457.50, x-ray $9,147.00 and clinical laboratory $6,006.00. The amount distributed for an out-patient service was 21 per cent of the total amount distributed to the six full participating hospitals. Only one or two service corporations in the country offer this out-patient service, If x-ray and clinical laboratory examinations were offered to out-patients in an area where accredited x-ray and clinical laboratories operated independently of the hospitals, such accredited x-ray and clinical labroatories would or should participate. No laboratories existed outside of the hospitals in the Bluefield area.

The figures which follow give an idea of the service required for a hospital minded population of 10,972 people.

Total Average Population (Year 1937)	10,972
Admitted to hospitals:	
Full Member Hospitals (Ob. not Included)	1,598
Colored Hospitals	25
Foreign Hospitals	26
Obstetrical Patients	183
Total Admissions	1,832
Hospital Days:	
Full Member Hospitals (Ob. not Included)	11,230
Colored Hospitals	182
Foreign Hospitals	157
Obstetrical Patients	1,662
Total Hospital Days	13,231
Daily Census All Hospitals	36.25
Average Stay in Hospital:	
Full Member Hospital (Ob. not Included)	7.24 days
Colored Hospitals	7.28 days
Foreign Hospitals	6.00 days
Obstetrical Patients	9.08 days
Out-patients:	
Use Operating Room	65
Anesthesia	57
X-ray	2,958
Laboratory	1,015
Total	4,095

Per Cent of Population receiving service as in-patient and out-patient, about	53%
Per Cent of Population actually admitted to hospital	16.7%
Per Cent Population of United States admitted to general hospitals (1937)	6.4%
Same for the State of West Virginia	6.8%
Same for the State of Virginia	5.1%
Daily Census per 1000 population	3.30%
Daily Census per 1000 population whole United States in general hospitals (1937)	2.22%
Same for West Virginia	1.68%
Same for Virginia	1.84%

Nearly all the service corporations have contracts with member hospitals to provide service for a stated amount per hospital day and this includes the usual items of hospital service. On this basis, for the year 1937, the average return to the six full member hospitals for regular patients was at the rate of $6.58 per day. This varied, of course, depending on how much or how little out-patient service was rendered and on the average stay of a patient in hospital. At one hospital, for instance, the average return per day was $7.26 and at another $6.16. Two of the hospitals did very little laboratory and x-ray work and the income per day was $4.62 and $4.95. In 1937 the patient paid only one-half the cost of room in the case of obstetric patients but never less than $3.00 per day. With what the corporation paid to the hospital and the patient paid, the minimum return for obstetric patients was $4.50. The patient since January 1 of this year pays 80 per cent of the price of a room, the corporation a smaller amount, and the minimum return now is $4.75 per day. Depending on the room selected, the return per day from obstetric patients varies from $4.75 to $7.55.

HOSPITAL STAY LIMITED

Up to January 1 of this year there was practically no limit on the number of days a member might stay in hospital. The privilege in a small number of instances was abused and since January 1 the limit of stay in any one membership year is 21 days, with a discount on the days in excess of the 21 days. The statistics quoted on last year took into account these longer periods of hospitalization, and if the period had been limited as it is now, a better showing per hospital day would be reflected.

One will see at once that the most commendable feature of the Bluefield plan is the liberal amount of service offered. The member is not only entitled to every phase of hospital care while he is a patient in the hospital, but he may have the benefit of any diagnostic x-ray or clinical laboratory examination as an out-patient. The out-patient service was offered from the start as an invaluable aid to the family doctor. The question arises if the service is not out of proportion to the amount paid for the service. According to the statistics already recited, the return is adequate, and the public is entitled to nothing less.

PROTECTION FOR THE PUBLIC

Another commendable feature is the arrangement between the service corporation and the member hospitals by which the member hospitals agree to accept payment for service rendered only so far as available funds will permit. In this way, the public is fully protected, and the only risk taken is by the member hospitals. So far the hospitals have gained. The arrangement also calls for the payment (in part) of all services rendered and includes not only a rate per day for a patient in the hospital but for all other services rendered. One hospital may be completely equipped for x-ray and clinical laboratory examinations and another poorly equipped. The gross return per hospital day is larger to the completely equipped hospital than it is to the poorly equipped, and that is equitable and as it should be. On the straight per day basis, the completely equipped hospital has no advantage.

The most serious defect to the Bluefield plan is the acceptance of partial payroll groups and individuals. In this way, the most prosperous and only the hospital minded are protected. An abnormal daily census of patients per 1000 population follows (3.30 patients for 1937) and necessitates a correspondingly high premium rate ($2.30 per month for the average family of husband and wife and two children). While distinct benefits accrue to the hospitals, the low wage earner, who needs the protection most, cannot afford the cost and is left out. Whole payroll groups should be included and all or none of a group. The group may be as small as five as long as all are included and the cost is evenly distributed. The same could apply even to a rural section where all the farmers and their families are included.

The ideal service organization should offer necessities and no luxuries, and a ward bed accordingly should be offered only. A certain number of people will insist on a private room, and in that case they are usually able to pay the small difference between the ward bed rate and the cost of the room selected. Where so much luxury is offered there is a tendency to seek hospitalization for trivial illnesses and remain in hospital unduly long where hospitalization has been actually necessary. A ward bed or an additional cost is a distinct deterrent to this sort of thing. Moreover, offering a ward bed only reduces to some extent the premium cost and tends to bring the service to a class of people who need it most.

COST OF SERVICE

The premium cost in any service organization should be the very lowest which is commensurate with good and complete service. Various plans throughout the United States have a monthly assessment for an individual varying from 50 cents to $1.00 and an assessment for a family varying from $1.50 to $2.00 or even more. It is generally recognized that no family, however large, should pay more than $2.00. It is probably good practice to make the single person and married people without children pay in part the cost of the big family. The assessment schedule should be as simple as possible and include the fewest classifications. The most practical schedule is probably one which includes only two assessments, one for an individual and one for the head of a family.

In the years 1936 and 1937 the daily census in general hospitals all over the United States was 2.15 patients per 1000 population and in West Virginia it was 1.57 patients.

This census includes all patients who are treated in general hospitals. The hospital service association would except compensable injuries and certain other cases, and if the association's membership included whole groups and was therefore the equivalent of compulsory insurance, a daily census of two patients for each 1000 population protected would represent the extreme upper limit. Various surveys show that the average employed groups are made up of 25 per cent single and 75 per cent employees with dependents. Each married employee would have an average of three dependents. One thousand employees (principal subscribers) would accordingly represent 3,250 people (employees and dependents). For each 1000 employees or 3,250 people, on the assumption of a high daily census of two patients per 1000 population, there would be constantly in the hospital 6.5 patients.

A new service plan in the process of being organized, for instance, proposes to assess monthly each single employee $1.00 and each employee who is the head of a family $2.00, no consideration being paid to registration fees. On the foregoing assumptions, the anticipated results would be something like the following:

250 x $1 equals $250 x 12 equals	$ 3,000.00
750 x $2 equals $1,500 x 12 equals	18,000.00
Total gross income 1 year	$21,000.00
Operating Cost 20% (top limit)	4,200.00
Available Hospital Fund	$16,800.00

In a year the total days in hospital (365 x 6.50) would amount to 2373 days or an income of $7.07 per hospital day ($16,800 divided by 2373). All of this is based on top estimates, and the income would probably be actually in excess of $8 per day. In such a case, the monthly assessment would be too high.

A question always involved in the development of a hospital service organization is how well it will be supported by the general practitioner. In Bluefield he supports the local organization, but not wholeheartedly and probably for a legitimate reason. In the Bluefield-Welch area there is a professional group operating at each member hospital, and there is a tendency for the public, once a contact is made, to drift where group service is available. Patients are encouraged to remain with their family doctors, but the effort is not always successful. The difficulty would not obtain to the same extent in an area which supported "open" hospitals.

The Bluefield plan has improved very materially the financial status of the member hospitals. There has been the most decided increase in the number of people treated as hospital patients, and the hospitals have been paid well for the service rendered. The attending doctor has had placed at his disposal all the diagnostic facilities of six hospitals. Since the patient's hospital bill is already paid, the doctor's bill entails less hardships and is much more easily collectible. Approximately 11,000 people are protected against every phase of hospital cost. The main defect of the plan is its operation on a purely voluntary insurance basis and its tendency therefore to include principally the "white collar" class. The high incidence of hospital care necessitates a correspondingly high premium, and this is out of the reach of the wage earner of low income. If the plan included the whole employed population, which it should include, the cost to the individual would be a little over half the present cost.

THE ASSOCIATED HOSPITALS, INC.

Information for all Member Hospitals

(Effective January 1, 1938)

Charges for services rendered all subscribing members will be made to conform to the following schedule:

For Hospital Service Proper:	
Room and Board, per day (21 days max. each contract year)	$ 5.00
Room and Board (obstetric)	1.00
Use of Operating Room	5.00
Anesthesia (any type)	5.00
For Diagnostic X-ray Examinations:	
Hand or Foot	5.00
Extremity (ankle, knee, hip, leg, thigh, forearm, arm, wrist, elbow, shoulder)	10.00
Head, Chest, Back or Pelvis	10.00
Gastrointestinal Series (stomach and duodenum)	15.00
Gastrointestinal Series (complete and including colon)	20.00
Colon only	10.00
Gall-bladder (Graham test)	15.00
Pyelogram	10.00
For Stereo Films Add to Each Item	2.00
Any Follow-Up (Repeat)	5.00
Maximum X-ray Charge Any One Injury Case	25.00

For Diagnostic Cardiologic Examinations:	
Electrocardiogram	10.00
Follow-Up (Repeat) any time one year	5.00
For Diagnostic Clinical Laboratory Examinations:	
Urinalysis	1.00
Kidney Function Test (P. S. P.)	3.00
Complete Blood Count	3.00
L. & D. or any part of complete blood count	2.00
Hemoglobin	2.00
Coagulation Test	1.00
Typing	5.00
Wassermann or Kahn	3.00
Widal	3.00
Blood Chemistry (each item)	5.00
Spinal Fluid (routine)	3.00
Spinal Fluid (including puncture)	5.00
Spinal Fluid Wassermann or Kahn	3.00
Gastric Contents (collected and examined)	5.00
Stool Examination	3.00
Smears	2.00
Sputum	3.00
Cultures	5.00
Animal Inoculation	10.00
Vaccines (autogenous)	10.00
Tissue (including microscopic section)	5.00
Basal Metabolism	5.00
Basal Metabolism (repeat)	2.00
Skin Test (Protein Sensitization Tests)	5.00
Maximum Laboratory Charges one Diagnostic Problem or one Illness	25.00

UMBILICAL HERNIA AT BIRTH CONTAINING VISCERA OTHER THAN INTESTINES*

(Case Report)

By W. MERLE WARMAN, M. D.
Morgantown, West Virginia

MALE INFANT—born, June 19, 1938. Calculated date of delivery from the menstrual period—June 25, 1938. Mother—25 years of age; para three.

Her pregnancy had progressed uneventfully to the eighth month when she had a rather severe fall striking her abdomen on some projection (fell through porch joists hanging with her abdomen across the joists). At that time she was brought into the hospital for observation but since there was no bleeding and nothing unusual occurred, she was discharged after two or three days.

Three days before delivery she was again admitted to the hospital thinking she was in labor. I examined her and since she was having no symptoms of labor, I discharged her. Next day she again came to the hospital this time apparently in the beginning of labor. Examination on admission this time revealed the cervix to be somewhat thinned out with no dilitation. The contractions were rather mild and at irregular intervals. The position was L.O.A. The labor progressed uneventfully and she delivered spontaneously a baby boy, weight seven pounds.

At the time of delivery, the head and shoulders delivered rather easily but there seemed to be a hang in the delivery of the abdomen and hips. Inspection at once revealed a male infant normal in all respects except at the umbilicus where there was a large tumor mass in the cord at its junction with the abdomen. This tumor was as large as my fist, which I used as a means of comparison to determine its relative size. Since the tumor was in the cord the thin membranes allowed part of the contents of the tumor to be visible. In the lower part of the mass coils of intestines could be seen moving. The upper part of the mass apparently was solid and covered by a slightly thicker layer, so that its exact nature could not be determined. I was unable to reduce the mass by pressure on the outside of the cord, so feeling that nothing could be done to save the baby's life (since the mass was so large I felt that the infant could not stand the increased intra-abdominal tension incident to its replacement), the cord was tied in the usual manner except at a greater distance from the abdomen and the infant sent to the nursery.

For three days following delivery the infant nursed well and was apparently getting along nicely. By this time however, the coverings of the hernial mass were becoming dusky blue in color, and it was evident that in a few more days they would slough off leaving the contents exposed. This condition

*Reported at City Hospital Staff Meeting, July 18, 1938.

of course being incompatible with life, it was decided, at the parent's insistence, to attempt replacement of the mass by operative means. This attempt was made with the patient under ether anesthesia. The area was cleansed with alcohol and the covering of the mass opened revealing the contents to be composed of about a foot of small intestine and a large red vascular mass in the upper four-fifths of the hernial sac. It was at first thought that this mass was some hemorrhagic cyst of the mesentery, but closer inspection showed it to be composed of various lobes and there was a gall-bladder present. We then knew that we had the liver in the sac as well as the intestines, and although the infant's upper abdomen had been scaphoid in contour, I had not thought of the possibility of the liver being outside of the abdomen. The hernial opening would admit one finger, so it was quite evident that the liver had been outside the abdomen for some time. The opening into the abdomen was enlarged both above and below, and after freeing the liver of the membranous coverings, it, together with the loops of the intestines, were placed in the abdomen and the wound closed. The trauma was so great however, that the infant died of shock about fifteen minutes later.

In a brief review of the literature on umbilical hernia at birth, I find a few cases reported in which the hernial sac contained intestines, but cases in which the hernia contains the viscera such as noted in this report are exceedingly rare. Dr. G. S. Dodds, professor of histology and embryology at West Virginia University has given me a brief report as to the mechanism of these herniae. The liver analge and the small intestine are outgrowths of the foregut. The small intestine lengthens so rapidly that beginning at the age of six weeks it extends into the umbilical cord, being contained in the extension of the body cavity. In the cord it forms loops and constitutes a normal umbilical hernia. Also, normally at the age of ten weeks spatial readjustments have allowed the intestine to return from the umbilical cord into the abdominal cavity. This normally transitory embryonic condition on rare occasions persists, or there may be a secondary protrusion of the viscera through a patent umbilicus giving rise to herniation into the cord.

Normally at the age of ten weeks of fetal life, when the coils of the intestines have withdrawn into the body, the portion of the body cavity in the umbilical cord becomes obliterated, and the abdominal wall gradually closes over the former opening, the closure being finally completed after birth when the stump of the cord has degenerated. Most rarely when the opening with the coelom and the exocoelom is very large, most of the abdominal viscera may extend into the cord.

In the treatment of these conditions, prompt operative interference gives the only chance of cure. Apparently from the reports, when these herniae contain intestines only, then immediate operation offers a good chance of cure—and this could be expected since intestines are soft and easily compressible and thereby do not markedly increase the tension in the abdomen when replaced. Secondly, the danger of infection (peritonitis) is evidently not so great since cases have been reported in which recovery followed operation, even when the herniae were uncovered and the intestines were exposed to dirty bed linens, etc.

SHOTGUN VITAMIN THERAPY

One of the latest health fads is "shotgun vitamin therapy," so labeled by the American Medical Association and brought to the attention of *Hygeia* readers by Lois Mattox Miller in her article entitled "The Vitamin Follies" in the November issue.

The tendency of many manufacturers has been to offer as many vitamins as possible in a single pill, the theory being that the more vitamins you can offer, the faster your preparation will sell.

The Association has repeatedly refused to approve such combinations and has pointed out that some vitamins may lose their potency when combined in complex mixtures. Of course vitamins are highly essential to health and life; but by simply eating three adequate meals a day, most persons will get all the vitamins they need and in the form they need them most.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Artificial pneumothorax has won a well-deserved reputation in the treatment of tuberculosis. Its shortcomings have been acknowledged though difficult to evaluate. Collapse therapy has now been in use sufficiently long to appraise its real value. Several workers have recently published their results and nearly all emphasize the point that many factors based on analysis of the cases must be considered in order to judge pneumothorax results fairly. One such review is that of Aycock and Keller who analyzed the results of 530 cases of artificial pneumothorax treatment. Excerpts of their paper follow.

RESULTS OF ARTIFICIAL PNEUMOTHORAX

Bare composite percentage results in a group of cases do not reflect the true value of pneumothorax. To determine its efficacy the analysis must comprehend the varied pathological manifestations. This review of 530 cases of artificial pneumothorax induced at Fitzsimons General Hospital since 1931, undertakes the interpretation of results, primarily, on the basis of the dominant tissue reaction at the time pneumothorax was induced.

TISSUE REACTION TYPES

Dominant tissue reactions can be embraced in three general groups: exudative, caseous pneumonic and fibrocavernous. All lesions of reinfection have their inception as an exudative process. Such lesions show a tendency toward resolution provided the issue is favorable. This group includes the lesion often designated as "soft." Regardless of extent, the exudative reaction must be looked upon as a phase in tissue response to tuberculous infection (or reinfection). Sooner or later some sort of proliferative response occurs in all such lesions. It seems more reasonable, therefore, to describe such tuberculosis lesions, not as exudative, but as in the exudative phase. Many exudative lesions appear to clear up with slight residuals while many others progress to tissue destruction, replaced or circumscribed by fibrous tissue.

The caseous pneumonic group is distinguished from the exudative by its greater intensity and, in some cases, the extent of the tissue reaction. Conditions favoring the origin of such lesions are those which effect a high and sudden concentration of tubercle bacilli within a tissue. Necrosis may follow with areas of excavation and resolution is seldom more than partial.

In the fibrocavernous group the dominant tissue reaction at the moment is proliferative and represents an effort to repair or circumscribe tissue damage. Areas of cavitation enclosed by fibrous walls are part of the picture. Such lesions constitute a menace because they are potential chronic suppurative foci, which may act as sources for future spread of the tuberculous infection.

WHEN COLLAPSE IS SATISFACTORY

The authors apply the term "satisfactory collapse" to denote that the desired degree of collapse of the disease area was obtained, with the closure of cavities, if present. Sputum conversion was made a requisite for classifying treatment results as satisfactory in those cases still under collapse, or still in the process of re-expansion.

Of the total cases (530) in which pneumothorax was induced, 301 or 57 per cent, were classified as "satisfactory collapse." All of the minimal cases (there were only 18) 86 per cent of the moderately advanced and 44.5 per cent of the far advanced cases, were in the "satisfactory collapse" group. These results confirm previous observations by many others to the effect that satisfactory results in pneumothorax diminish in proportion to the extent of the treated lesion.

Of the entire exudative group, 73.5 per cent showed "satisfactory collapse." This was principally because of the nature of the lesions and the low incidence of dense pleural adhesions or symphyses encountered. Of the caseous pneumonic group (25 cases) only 28 per cent were satisfactorily collapsed and of the fibrocavernous group, mostly far advanced cases, 26.5 per cent were satisfactory.

The fact that by far the largest percentage of satisfactory results was obtained in the exudative group, prompts the authors to meet the argument that in this group there is a strong tendency toward spontaneous healing and that, therefore, many such cases will recover without collapse therapy. "On this point," say the authors, "there is no argument. The problem which confronts us lies in the determination of those cases which may or may not terminate favorably under expectant treatment. The characteristic of exudative lesions which admits of little argument is that they do not remain stationary, as such, for any considerable period of time. These lesions usually establish a trend, either progressive or recessive, in a very short time, so that no protracted periods of observation should be necessary to determine this point. As an illustration,

(Continued on page xxix)

President's Page

When one starts out from home to travel some distance he cannot always be sure in advance whether he shall have merely a trip or a pleasant journey. So many circumstances condition his enjoyment—modes of travel, food, weather, lodging—all tolerable if companionship en route and at the day's end is soul-sustaining.

As my official year draws to a close I cannot look back on it and point to any spectacular achievements to which I may lay claim, but it is my impression that our Association has had a year of healthy growth, and entirely apart from any efforts on my part has increased the strength of its internal structure.

Official contact with my associates, past presidents, councillors, committeemen, members, has been agreeable, stimulating, inspiring; remarkably free from selfishness and petty bickering. Best of all it has convinced me that the future of medicine in West Virginia and the lofty humanitarian mission which it fosters have been safely committed.

In the social chaos of today's world the practice of medicine is entering upon a new era, to travel an uncharted course. To travel thus is always dangerous. The careful mariner departs from the familiar shore line reluctantly, proceeds cautiously, sounding the bottom often, the while he watches wind and wave. The world needs medical service as never before; the greater need then to navigate safely. Acutely receptive to the demands of changing conditions, let us not too hastily abandon the traditions and accumulated experience of years. A principle as sound at present as it has been in the past, is that the best interests of the patient coincide with those of the doctor.

Should the attempts to meet the new situation, currently being made by your Council through a specially appointed committee, not meet with your entire approval, be tolerant, and contribute constructive criticism; the job is inherently difficult. More than one Congress will go into history before all the difficulties which now confront us are ironed out.

About to yield the gavel to a worthy successor, I wish for Dr. Bobbitt that he may enjoy the same kindly, wholehearted cooperation which you have so generously shown me; and at the close of 1939, I hope he may feel like saying as I do now, "I have had a pleasant journey."

President.

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MONONGALIA VICTORY

Our heartiest congratulations go this month to the Monongalia County Medical Society for its very splendid legal victory in the Morgantown privilege tax case. Several months ago the Morgantown City Council passed an ordinance imposing a levy of one-fourth of one per cent on the gross income of all businesses, vocations and professions from which the state requires a levy. An injunction restraining the city from collecting the tax against twenty-nine Morgantown physicians was issued by Judge Minter L. Wilson in circuit court on November 22.

When the ordinance was enacted some time ago, it was generally agreed by most of the Morgantown physicians to ignore the tax and to await developments. Legal advice obtained in Morgantown and also through the State Association upheld this theory. A few days before the injunction was obtained, the twenty-nine Morgantown doctors involved were summoned to appear in municipal court for failure to file returns. Judge Wilson, in halting the proceedings, asserted the ordinance does not apply to professional men because the state does not tax them.

Judge Wilson ruled that a license issued to doctors is issued under police powers and the fee collected is only to cover expenses of examination and administration. Until the state levies a direct occupational tax, municipalities are powerless to do so, he said. It was understood that the case would not be carried further.

Although the doctors were the only ones concerned in the case, it was conceded the application would apply to dentists, engineers, lawyers and other professions. The victory in Morgantown will no doubt forestall the possibility of similar professional income levies being assessed in other West Virginia municipalities.

WE PULL A BONER

Several years ago we attended an illustrated lecture in ornithology. After the second lantern slide, the lecturer turned red, stammered a minute, explained that he had brought along the wrong slides, and proceeded with a very fine presentation of the Alaskan gold rush.

The JOURNAL found itself in somewhat the same position last month and we hasten to extend this sincere apology to Dr. John C. Gittings, eminent Philadelphia pediatrician, whose paper we published on "The Art of Diagnosis." Awaiting publication is a second splendid manuscript by Dr. Gittings on "Non-Specific Lung Infection"; the latter to be accompanied by six illustrations. In our November issue, through error, we illustrated "The Art of Diagnosis" with the pictures intended for "Non-Specific Lung Infections."

Dr. Gittings, another boner like that and we'll probably light out for the Alaskan gold rush ourselves. Our make-up man's comment hit the nail on the head. "Well, sir," said he, "that's our first serious mistake in three years, but it shore is a honey."

THE MENTAL HYGIENE PROBLEM

The problem of the proper care of the mentally ill of America has assumed proportions that demand our urgent attention. There are as many beds in hospitals devoted to treatment of mental diseases as there are in general hospitals. Notwithstanding this fact, in many of the states, the mental hospitals are crowded to overcapacity and

patients who are in need of hospital care are unable to gain admission because of lack of room.

The report of the West Virginia Board of Control of September 30, 1938, shows that there are in the three hospitals in this state devoted to the care of white mental patients a total of 3494 persons. The rated bed capacity of these institutions totals 2530. The difference of 964 between the actual capacity and the rated capacity is an overload. In addition to those already in the state hospitals, this report shows a total of 331 persons on the waiting lists of the three hospitals. These persons have been examined by the mental hygiene commissions of various counties and have been adjudged as in need of hospital care. Many of them are being detained in jails awaiting vacancies to occur in the hospitals by the death or discharge of patients.

In view of these facts we note with interest the timely symposium on mental health which will be held in Richmond, Virginia, December 28 to 30, in conjunction with the annual meeting of the American Association for the Advancement of Science which since 1934 has held a series of nine symposia on medical problems. This will be the tenth, and the first to recognize the important problems of mental disease and mental hygiene. The names that appear on the program are those of leaders in these important fields.

The care of the mentally ill must be considered a public health problem. Its ultimate solution must be approached through prophylactic measures. It is no longer necessary to maintain large pesthouses for smallpox victims and to set aside wards for the treatment of numerous cases of typhoid because these plagues have been largely stamped out by preventive means. Mental hygiene is worthy of the active support of the medical profession and the allied social groups.

The program of this meeting embraces the whole field of mental hygiene and the individual contributors have been chosen for their fitness to bring out what is definitely known in regard to the particular problems to be considered and to "expose for discussion and study questions and issues that are in the forefront of present day scientific thinking in psychiatry and mental hygiene." The unusual character of the meeting, its more than ordinary importance, and the effort that will be made to deal in a new way with problems that have not yet been adequately attacked, warrant our interest and support, and we urge the physicians of West Virginia to attend these sessions.

THE DRUGGISTS' CAMPAIGN

We commend the West Virginia Pharmaceutical Association in its present campaign to cooperate with the medical profession in bringing about a wider use of U. S. pharmacopoeia products. The program is national in scope and is being carried out to extend authentic information to physicians concerning the use of official medicines. In connection with the national campaign, a series of articles presenting the therapeutic side of specific diseases is being published bi-weekly in the *Journal of the American Medical Association.*

The West Virginia campaign started with the very attractive pharmaceutical exhibit at our Clarksburg convention in 1937, which was repeated at White Sulphur Springs last July. In addition to this, the Pharmaceutical Association is now mailing out reprints and abstracts to our medical association members not only pointing out the therapeutic side of specific diseases, but dealing with substances having similar physiologic activity.

Physicians who have used the Pharmaceutical Association's material report what every doctor already knows, i.e., that a properly written prescription will save a patient money. We urge our readers to cooperate with this pharmaceutical campaign. It is deserving of our entire support.

A. M. A. NEWS SERVICE

"The American Medical Association News," containing official announcements, abstracts and condensations of original articles

and editorials appearing in the *A. M. A. Journal* and in *Hygeia,* is the most recent addition to the list of valuable printed literature released by the parent organization. The new pamphlet, consisting of four printed pages, is published weekly and is available to newspapers, official medical periodicals and to county and state medical associations.

The report of the meeting of the A. M. A. House of Delegates Committee of Seven with the Government's Interdepartmental Committee in Washington on October 30 is published in the first issue of the "*News*" and is reprinted here for the benefit of Association members. It is understood that a second conference between the two groups will be held early in December. The complete text of the report follows:

On October 30 the Committee of the House of Delegates of the American Medical Association, including Dr. Irvin Abell, President of the Association, as chairman; Dr. Walter F. Donaldson, Pittsburgh; Dr. Walter E. Vest, Huntington, W. Va.; Dr. Henry A. Luce, Detroit; Dr. Fred W. Rankin, Lexington, Ky.; Dr. Frederic E. Sondern, New York; Dr. E. H. Cary of Dallas, Texas, with Dr. Rock Sleyster, President-Elect of the American Medical Association, and Dr. Olin West, Secretary, ex officio, met with the Interdepartmental Committee to Coordinate Health and Welfare Activities of the Government in Washington, *The Journal of the American Medical Association* for November 19 reports. The Interdepartmental Committee arranged for attendance by several members of its own Technical Committee, and the American Medical Association group was accompanied by Dr. W. C. Woodward of the Bureau of Legal Medicine and Medical Legislation and Dr. R. G. Leland and Mr. Jack D. Laux of the Bureau of Medical Economics.

In a joint interview, following the conference, by Dr. Irvin Abell and Miss Josephine Roche, it was pointed out that the conference had reached no definite conclusions or specific plans for cooperation, nor had there been any abandonment of specific positions taken by either group in relationship to the program. The representatives of the government again explained the detailed concept of the National Health Program. The representatives of the American Medical Association indicated the actions taken by the House of Delegates, which involved approval of the extension of public health service specifically related to the prevention of disease and the provision of hospitals and allied institutions and of government assistance for the care of the indigent when the need can be established. The medical representatives pointed out that in hospitalization and the care of the indigent the administration should be simple and placed in the hands of responsible public officials who would cooperate with local medical societies. The medical representatives again expressed opposition to compulsory sickness insurance and the fear of the fact that the insistence of such a system by the government would be "bureaucratic, costly and political."

In a brief report on the conference, President Irvin Abell said:

The reception accorded our committee was quite friendly and the discussions evinced the same spirit on both sides. They were fruitful in bringing out a better understanding of opposing points of view and in focusing attention on the discrepancies in data and statistics on which such points of view are founded. While tentative agreement in principle, not in methods of application, was reached on four of the recommendations, the conference was stymied by the question of compulsory sickness insurance. The Interdepartmental Committee is to hold conferences with representatives of other groups, notably the American Public Health Association, the American Dental Association, the American Hospital Association and the American Nursing Association. It was suggested that our committee return at a later date for further conference presumably after the above named organizations, through their representatives, have had opportunity to express their views. If this invitation is accepted an early date was sug-

gested, as the Interdepartmental Committee will prepare its report to be submitted to the President at the opening of the Congress, when its recommendations may be embodied in proposed legislation.

FREE SERUM FOR NEEDY

The efficacy of anti-pneumococcus serum is so clear that it should be supplied free by state and city boards of health for those who cannot afford it, as is the case in the state of New York, Russell L. Cecil, M. D., and Edgar A. Lawrence, M. D., New York, state in *The Journal of the American Medical Association* for November 19.

The results of serum therapy, the mortality and incidence of the various types of pneumonia as they occurred in 911 private patients treated at home, in the private pavilions of hospitals or in consultation in private practice are discussed by the authors. The review shows that the social stratum of the patient has little to do with the probable recovery rate, which depends not so much on the economic status of the person as on his age, on the type of pneumonia, and last but most important of all, on the early use of serum.

The death rate for pneumonia appears to be lowest among patients who receive treatment at home.

However, it should not be inferred that patients receive better treatment at home than they do in the private pavilions of hospitals nor that transportation in an ambulance to the hospital is a detriment to the patient's chance of recovery. In deciding whether a pneumonia patient should be treated at home or be transferred to a convenient hospital several factors have to be considered:

1. Has the patient a comfortable home with proper facilities for handling the sick?
2. Does the patient live in town and at a convenient distance from the doctor's office or does he live in the country where he is inaccessible to emergency care?
3. Is the hospital under consideration provided with a medical house officer who is capable of handling medical emergencies such as vasomotor collapse, cyanosis or pulmonary edema?

The obvious advantages in having a pneumonia patient under hospital care are that the following are immediately available: sputum and blood cultures, x-ray examinations, oxygen therapy, serum treatment and, finally, if a surgical emergency arises treatment can be initiated promptly.

There is a high incidence of (20.2 per cent in the patients from the private pavilions of hospitals and 23.1 per cent in patients seen in consultation) and death rate from type III pneumonia in private patients. Type III pneumonia, by reason of its prevalence and fatality rate of almost 60 per cent, has come to be one of the most serious problems that the practitioner has to face. It is made doubly serious by the fact that type III serum fails to control the infection. Type I pneumonia occurred in 15.6 and 24.7 per cent and type II in 6.9 and 9.7 per cent, respectively, in the pavilion and consultation series of patients.

Pneumonia in private practice is not so mild a disease as it has often been considered to be. Certainly in New York private hospital pavilions the fatality rate is surprisingly high—no doubt definitely higher than the rate for small towns and rural districts.

PERSONALITY AND VOCATION

In keeping civilization going, the introverts—those persons whose interests are mostly personal—furnish most of the ideas; the extraverts, or socially minded people, turn the wheels, Paul Popenoe declares in his article "Extravert or Introvert?" in the November *Hygeia*.

Temperamental differences are of vital importance in vocational guidance, many a maladjustment of adult life being due to the fact that an extravert is trying to do an introvert's job, or vice versa.

On the whole, extraverts naturally tend to succeed best in occupations that bring them into contact with other people and that demand aggressiveness, decision and action. Introverts will be found predominantly in places where they can work alone and in creative fields, such as art, science and literature.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

SANITATION IMPROVEMENTS

Rural sanitation and municipal sanitation show tremendous gains in West Virginia during the past five years. The stimulus of federal funds has been largely responsible for the extraordinary improvement in public water supplies and community sanitation in all parts of West Virginia. Let us glance briefly at four aspects of the sanitation program which has so drastically brought down the typhoid fever and intestinal disease death rates.

FIRST FACTOR

The public water supplies furnishing drinking water in some fifty or more small cities in West Virginia, such as Ripley, Summersville, Union, Buffalo, Winfield and Elizabeth, to mention only a few, have been improved or provided for the first time, through the Public Works Administration and the medium of revenue bonds. In many of these county seat towns unsafe dug wells were the source of drinking water and at times muddy, grossly polluted water was pumped into the inadequate water supply systems. It does not take much imagination to see the connection between such conditions and a high intestinal disease death rate. As a result of the installation of safe and adequate public water supplies in these fifty or more small cities scattered over West Virginia, the drinking waters are safe.

SECOND FACTOR

The Sanitary Engineering Division has worked closely with the Public Works Administration and the Works Progress Administration in the extension and improvement program on public water supplies and the work still goes on. However, the installation of a good water works system may be largely nullified if an untrained and indifferent operator is placed in charge of the delicate water purification equipment. The machinery which stands between the polluted river water which is the source of water supply and the open water tap in the home, when the citizen trustingly draws a glass of drinking water, must be operated with great care and precision. Therefore, over a period of five years the State Department of Health, in cooperation with the West Virginia University, has developed a licensing system for water plant operators. Two hundred and sixty men have taken their written examinations and qualified for licenses which are issued by the State Health Commissioner, Doctor Arthur E. McClue. Since the plan has been in operation very few changes have taken place in the ranks of the men and they have given extraordinary service in emergency times of drouth and flood. The floods of 1936 and 1937 on the Ohio River tested them in safeguarding public water supplies and they showed the results of their training by prompt and sensible action to safeguard the health of the citizens.

THIRD FACTOR

Five years operation of the program of assisting folks living in the rural and mining areas to have safe disposal of body wastes has resulted in the construction of over two hundred thousand sanitary privies. The style of waste disposal in these rural districts has been completely altered by this wholesale building of sanitary privies. Formally the open back privy was built over the small creek so that heavy rains would wash the deposits down the hill to spread intestinal disease to those living downstream. It is certain that nearly one million rural people in the mountains, on the farms, and in the mining villages in this State are enjoying better health as the result of the State Health Department and the work relief cooperative program on community sanitation.

FOURTH FACTOR

Not only has sanitation improved in rural West Virginia, but a start has been made in building sewage purification plants. Cities have begun to realize that they can no longer discharge the contents of the sewers into the nearest water course, but must collect the sewage at one point (for a small city this amounts to approximately two or three million gallons a day) and then pass this dirty water containing the wastes from households and business houses through a sewage treatment plant before discharging it to the stream.

The City of Bluefield, with Public Works Administration assistance, has completed and placed in operation two complete sewage treatment plants. A competent chemist controls their operation. Bluefield has set up a model plan for any West Virginia city to copy and it will not be many years before the State will require that cities make safe and sanitary disposal of their dangerous and dirty wastes. In fact, the City of Beckley is now complying with an order of the State Water Commission and building two modern sewage disposal plants to protect the public health.

SUMMARY

Thus the sanitation improvements in West Virginia from 1933 to 1938 have gone forward in four directions:

(1) The physical improvement of over fifty small water supply systems.

(2) The improvement of the operators in charge of water purification plants by consistent training and a licensing system for competent operators.

(3) The building of over two hundred thousand sanitary privies to provide safe disposal of body wastes in the rural and mining areas.

(4) The building of sewage treatment plants to provide safe disposal of municipal wastes and prevent detrimental stream pollution.

COMMUNICABLE DISEASES

The Public Health Council at its regular meeting in Bluefield on October 31, passed a regulation making it mandatory that pneumonia, typhus fever, undulant fever and diarrhea of the newborn be reported by physicians to the State Health Department, effective November 1, 1938. The control of communicable diseases depends primarily upon complete, accurate and immediate reporting to local health authorities. Without this information, it is impossible to put into effect the knowledge that is now available for their control.

REGISTRATION CAMPAIGN

The recent publicity campaign to promote birth registration was successful even beyond expectations, if the number of cards received is any indication. Already 26,000 cards requesting birth certificates have been received by the Division of Vital Statistics, and the eventual number will probably exceed fifty thousand.

THE MIDWIFE PROBLEM

At first glance it would be said that the State of West Virginia as a whole does not have much of a midwife problem, less than 300 midwives having been registered as required by law during the present year. Consider the fact that in 1936, out of the 40,855 live births reported, physicians delivered 91.2 per cent, others delivered 1.2 per cent and the midwives delivered 7.6 per cent of this entire number.

However, a careful examination of the records reveals the fact that there are undoubtedly many women, who are delivering patients, who are not registered. A study of the state, county by county, shows a number of counties with a larger percentage of midwives delivering infants, than the average for the entire state. For example, there are nine counties in West Virginia in which over 20 per cent of the live births recorded are reported as being delivered by midwives. Braxton county reports 37.4 per cent; Calhoun county reports 28.3 per cent; Lincoln county reports 49.5 per cent and Webster county reports 28.6 per cent. These percentages show that there are areas in West Virginia where a large percentage of the children are born without the advantages of a physician in attendance.

GROWTH OF LABORATORY WORK

The West Virginia State Hygienic Laboratory reports an unusually large increase in the quality as well as the number of specimens submitted for laboratory examination. This rapid increase is a direct result of the growing number of county health units and venereal disease clinics throughout the state. Syphilis examinations represent about 70 per cent of the totals for the past five years; examinations for enteric fevers, undulant fever, endemic typhus, tularemia, and rabies have markedly increased; formerly the examination of milks for grading was a "minus quantity," but in the last two years this work has become one of the laboratory's major activities. Laboratory results alone indicate a considerable improvement in the state's milk supplies; positive laboratory examinations for rabies represent about 65 per cent of the number of suspected heads received.

NEW SANITARY ENGINEER

On November 12, a year's leave of absence was granted to E. S. Tisdale, state sanitary engineer, to accept a position with the U. S. Public Health Service, to assist in the stream pollution study of the Ohio river basin. Mr. Tisdale, who has been with the State Health Department for twenty-two years has assumed his new duties in Cincinnati.

Mr. J. B. Harrington, for thirteen years associate director of sanitary engineering, has been named by Dr. A. E. McClue to fill Mr. Tisdale's position. All activities properly considered public health engineering, both in the central office and in the field have been placed under Mr. Harrington's supervision. These include, beside the regular activities, the engineering and other activities of the state water commission, mine sealing and the community sanitation program.

General News

DR. VEST HONORED

Dr. Walter E. Vest, Huntington, was unanimously elected president of the Southern Medical Association at the thirty-second annual meeting in Oklahoma City on November 15-18, 1938. The "Southern" is the second largest medical organization in the world and the election of Dr. Vest is a signal honor to West Virginia. Dr. T. W. Moore, Huntington, also served as president of the Southern Medical Association in 1929.

Dr. Arthur T. McCormick of Louisville, secretary of the Kentucky State Medical Society and Kentucky Health Commissioner, was named as president-elect of the Southern Association and Mr. C. P. Loranz, Birmingham, was reelected secretary-treasurer and general manager.

Dr. H. H. Haynes, Clarksburg, attracted much interest with his paper, "New Method of Treating Fractures by Skeletal Fixation of the Individual Bone," which was presented before the Section on Bone and Joint Surgery.

An interesting feature of the Oklahoma City meeting was the Conference of Presidents, Secretaries and Editors held at the Oklahoma Biltmore Hotel on the opening evening of the convention. Principal speakers were Dr. Irvin Abell, president of the American Medical Association, and Dr. Edward H. Cary of Dallas, Texas, A. M. A. past president.

Among the West Virginia doctors in attendance were Dr. Vest, Dr. Haynes, Dr. J. R. Bloss, Dr. R. J. Wilkinson, Dr. W. E. Neal, Dr. Raymond Sloan and Dr. T. W. Moore, Huntington; Dr. Roy Ben Miller and Dr. R. S. Widmeyer, Parkersburg; Dr. J. L. Blanton, Fairmont and Dr. L. E. Neal, Clarksburg.

AMERICAN BOARD OF OBSTETRICS

The next written examination and review of case histories for Group B candidates for the American Board of Obstetrics and Gynecology will be held in various cities of the United States and Canada on Saturday, February 4, 1939, at 2:00 p. m. Application for admission to this examination must be filed on an official application form in the office of the secretary at least sixty days prior to this date, (or before December 4, 1938).

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire board, meeting in St. Louis, Missouri, on May 15 and 16, 1939, immediately prior to the annual meeting of the American Medical Association. Application for admission to Group A examinations must be on file in the secretary's office by March 15, 1939.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, Pa.

POSTGRADUATE INSTITUTE

The Philadelphia County Medical Society desires to announce formally, the completion of its scientific program for the Fourth Annual Postgraduate Institute to be held in the Bellevue-Stratford Hotel, Philadelphia, during the week beginning March 13, 1939. The subjects to be considered are those embraced by the terms blood dyscrasias and metabolic disorders. These will be further subdivided for convenience in instruction into eighty-six clinical lectures, with open forum discussion for each topic, delivered by as many individual specialists of national distinction.

The position of Philadelphia as a medical center in the past has been justified by its large array of first class hospitals and contributory institutions, and that conservative scholastic atmosphere so essential to careful and dependable research. Philadelphia has continued to maintain its position and it has been the desire of the Philadelphia County Medical Society to release to its own members and to those of the medical profession in general, the results of the labors so diligently conducted within the walls of the city's several medical schools.

The tremendous advances in the medical sciences since the World War have increased the demands of the lay public for medical information. The development of the channels for communication have familiarized the public with medical conditions and terms to such an extent that the physician must keep himself at least informed if not intensely educated concerning the most recent work in the medical field. He cannot conduct his practice along the older lines without continuing his education in the new.

COMING MEETINGS

The third Congress of the Pan Pacific Surgical Association will be held in Honolulu on September 15 to 28, 1939, it has just been announced by Dr. F. J. Pinkerton, secretary. There will be sections in fractures and orthopedics, general surgery, gynecology, motion pictures, neurosurgery, ophthalmology, otolaryngology, roentgenology, plastic

surgery, thoracic surgery and neurology. Complete information may be obtained from Dr. Pinkerton, Young Building, Honolulu, Hawaii.

The American Congress on Obstetrics and Gynecology, sponsored by the American Committee on Maternal Welfare, will meet in Cleveland on September 11-15, 1939. Manager of the group is Paul Gebhard, 650 Rush Street, Chicago, Illinois.

SCIENTIFIC MEDICINE WINS

The voters of California and Colorado, November 8, by overwhelming majorities emphatically rejected proposals made in those states to undermine the structure of scientific medicine, *The Journal of the American Medical Association* for November 19 says. In California an initiative humane pound law, so called, proposing to cripple scientific research by hampering animal experimentation, was decisively defeated. In Colorado an initiative measure proposed by a group of chiropractors, to debase the quality of medical care in the state by repealing the basic science act and by destroying other safeguards that have been erected to assure adequate and scientific medical service, was met by an avalanche of negative votes, running as high as ten to one in some counties.

In Oklahoma an initiative measure that would have sanctioned practices not conducive to public welfare failed to get on the ballot, because of court action instituted by the medical profession. In Ohio a chiropractic initiative somewhat similar to the Colorado initiative died aborning, the cultist sponsors apparently becoming disheartened shortly after the proposal was submitted to the attorney general for his approval as to form. Petitions in Ohio were not circulated and the proposed initiative measure was not submitted to the people for a vote.

The medical associations in the states named assumed the lead in thwarting the selfish interests behind these proposals, interests that would subordinate the public welfare to their own private ends. In California and Colorado the state medical associations, aided by many lay and other professional groups and by public spirited citizens, informed the people fully of the dangers implicit in the proposals. To bring these dangers to the attention of the voters necessitated great sacrifices of time and money, but the results show that such sacrifices were well worth while and indicate that an informed electorate will support scientific medical care under proper legal and ethical safeguards.

TWENTY-FIVE YEARS AGO

(Taken from the November, 1913 Journal)

Original articles in this issue of the JOURNAL contributed by members were: "The Pulse", by Charles O'Grady, M. D., Charleston, and "Dermatology in London" by W. S. Robertson, M. D., Charleston. The latter was written after an extended visit to the London Clinics by Dr. Robertson.

* * * *

The State Association secretary writes that the Association is larger than ever before, and with a little effort in collecting the dues of the members who are still in arrears for 1913, we will shoot beyond the 900 mark. He also writes that he needs some more papers for the Bluefield meeting . . . the long winter evenings now upon us afford a suitable time in which to collect your thoughts and put them on paper . . . It is a profitable exercise.

* * * *

STATE NEWS

Dr. O. F. Covert of Moundsville, is attending Postgraduate School of New York. He expects to return about the first of the year and will open an office in the German Bank Building of Wheeling, giving special attention to surgery, gynecology and diseases of the nose and throat. He will also maintain an office in Moundsville, having office hours in Wheeling in the afternoons only.

Dr. A. P. Butt of Davis, has recently been in attendance on the clinics of the Mayos in Rochester, Minn., as has Dr. R. J. Reed of Wheeling. Many physicians of Charleston attended the Surgical Clinics in Chicago last month.

Dr. George R. White has moved from Barboursville to Williamson.

SAINT MARY'S NEW UNIT

The new units of the Saint Mary's Hospital, Huntington, were officially dedicated with appropriate ceremonies on November 9, 1938. Open house was held during the afternoon and evening, during which refreshments were served and films shown. A complimentary dinner was served at the hospital at 6:30 o'clock with Dr. W. N. Rowley, staff president, serving as toastmaster.

Among those who appeared on the banquet program were Dr. Ray M. Bobbitt, Association president; Most Reverend J. J. Swint, Bishop of Wheeling, and Dr. Walter C. Swann, president of the Cabell County Medical Society.

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County Society News

CABELL COUNTY

The regular meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on Thursday evening, November 10, with Dr. Robert A. Lyon as the guest speaker. Dr. Lyon, who is instructor in pediatrics at the University of Cincinnati, lectured on "Congenital Syphilis." His subject matter was interestingly presented and considerable open discussion followed.

The society accepted an invitation from the Lawrence County Medical Society to meet with the Ninth Ohio District at Ironton on November 16.

BOYD F. BROWN, *Secretary*.

CENTRAL WEST VIRGINIA

The regular quarterly meeting of the Central West Virginia Medical Society was held in the Lions Club Hall, Buckhannon, on the evening of November 21 with a good attendance. Dinner was served to the members and their wives at 6:30 o'clock, following which the regular program was taken up.

The speaker of the evening was Dr. Arthur E. McClue, state health commissioner, who talked on "Socialized Medicine."

A. B. BOWYER, *Secretary*.

FAYETTE COUNTY

The regular meeting of the Fayette County Medical Society was held at the Laird Memorial Hospital, Montgomery, on the evening of November 8 at eight o'clock. Dr. A. E. Bays, president, presided. The guest speaker of the evening was Dr. Sobisca S. Hall, Clarksburg, who presented an instructive discussion on methods of obtaining histories, keeping records and various other aids for satisfactory physician-patient relationship.

GILBERT A. DANIEL, *Secretary*.

HARRISON COUNTY

The regular monthly meeting of the Harrison County Medical Society was held November 3, at the Stonewall Jackson Hotel at 6:00 p. m. with Dr. E. F. Wehner presiding.

The guest speaker was Dr. Harvey E. Thorpe, of Pittsburgh, who gave a most instructive discussion on "Common Eye Conditions of Interest to the General Practitioner", and illustrated his talk with colored lantern slides. Thirty-five doctors were in attendance. J. G. RALSTON, *Secretary*.

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of November 8 with Dr. B. H. Swint, president, presiding. There was a good attendance.

The essayist of the evening was Dr. Milton V. Veldee of Washington. His subject was "The Streptococcus Hemolyticus in Human Disease." This was a most interesting and instructive presentation, backed up by Dr. Veldee's many years experience in the study of streptococcus infection.

A. SPATES BRADY, JR., *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its regular meeting November 9 at the Aracoma Hotel, Logan. Dr. C. B. Wright, Huntington, read a paper on "Stab Wounds of the Chest." He outlined a newer operation for this type of injury that is so often met and so often proves fatal.

Dr. Hallock Moore, Huntington, read a paper on "The Discharging Ear." This was a very practical paper and was discussed by Dr. C. A. Davis and Dr. F. V. Gammage of Logan.

Dr. Joseph L. Green and Dr. James Harvey Thornbury, both of Logan, were admitted to membership in the society.

Following a short talk by Colonel Arthur Downing, president of the Logan Coal Club, the society adopted a resolution petitioning West Virginia senators and representatives to protect the coal industry of West Virginia and endeavor to place it on an even competitive basis with other fuels.

J. L. PATTERSON, *Secretary*.

McDOWELL COUNTY

The regular meeting of the McDowell County Medical Society was held at the Appalachian Community Room, Welch, on November 9, 1938, with Dr. C. B. Chapman, president, presiding. There were eighteen members present.

The nominating committee composed of Drs. Hall, Anderson and Edwards, reported the following members names proposed for the respective offices:

Dr. F. E. LaPrade, president; Dr. C. C. Cochran, vice president; Dr. James Vermillion, secretary; Dr. J. K. Cooper, treasurer; Dr. N. H. Dyer, censor; Dr. C. B. Chapman, Dr. C. R. Hughes, delegates to state meeting; Dr. H. P. Evans, Dr. R. D. Clark, alternate delegates.

Dr. Wetherby moved that the members selected

by the committee be unanimously elected. The motion was seconded and passed by unanimous vote of the society.

Dr. Cooper, treasurer, reported a balance of $162.99 in the treasury.

Dr. Anderson moved that the society have a party of some nature in place of the December meeting, and draw on the treasury to the extent of $100 to defray costs. Dr. Chapman appointed the following committee to decide what type of entertainment would be had: Dr. Camper, chairman; Dr. Anderson, Dr. Wetherby, Dr. Warren.

Dr. C. F. Jackson was voted upon and passed to become a member of the society, effective on January first.

F. E. LaPrade, *Secretary.*

MERCER COUNTY

The Mercer County Medical Society met in the Municipal Building, Bluefield, on the evening of October 27 with the largest attendance of the year. The following highly interesting scientific program was presented:

"A New Operation for Cataract (Verhoeffs' Method)" by Dr. H. Lee Harris, Richlands, Virginia.

"Unusual Vaccinia," by Dr. J. E. Blaydes, Bluefield.

"Nasal Allergy," by Dr. Ben Bird, Princeton.

"Importance of Early Diagnosis in Squint," by Charles St. Clair, Bluefield.

Dr. Marshall Sinclair discussed "Nasal Allergy" and Dr. James Vermillion reported an interesting case of nasal allergy.

The matter of establishing a birth control clinic in Bluefield was again called to the attention of the members, but no action was taken.

O. G. King, *Secretary.*

MONONGALIA COUNTY

The regular monthly meeting of the Monongalia County Medical Society was held at the Hotel Morgan on the evening of November 14 with a good attendance. Dinner was served at six o'clock, following which there was a short business session. The meeting then adjourned to Commencement Hall for the scientific program, to which the public was invited.

The guest speaker of the evening was Dr. Claude S. Beck, Professor of Surgery of Western Reserve University, Cleveland. His subject was "Surgery

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RALPH MAXWELL, *Secretary.*

OHIO COUNTY

Dr. George Crile of the Cleveland Clinic was the guest essayist at the October 28 meeting of the Ohio County Medical Society, which was held at the Ohio Valley General Hospital, Wheeling. Dr. Crile lectured on "The Selection of Cases and the End Results in the Surgical Treatment of Essential Hypertension." Discussion of this interesting presentation was opened by Dr. J. R. Caldwell, Dr. G. W. Abersold and Dr. W. M. Sheppe.

The annual Jacob Schwinn scientific lecture was given at the November 11 meeting by Dr. H. R. Sauder, Wheeling. His subject was "The Clinical Variants of Coronary Arteriosclerosis." Discussion was led by Dr. J. W. Gilmore and Dr. R. J. Snider.

Dr. George M. Lyon, Huntington, chairman of the Committee on Postgraduate Medical Education of the American Academy of Pediatrics, was the guest speaker of the society at the November 25 meeting at the Ohio Valley General Hospital. Dr. Lyon spoke on "Sulfanilamide Therapy in Meningitis."

R. W. LUKENS, *Secretary.*

PARKERSBURG ACADEMY

Dr. S. F. Marshall, Senior Surgeon to the Lahey Clinic, Boston, was the guest speaker at the November 2 meeting of the Academy of Medicine of Parkersburg. His subject was "The Diagnosis and Treatment of Peptic Ulcer" and "Surgical Emergencies of the Abdomen."

The annual business meeting and election of officers of the Academy will be held on December 7.

J. L. WADE, *Secretary.*

POTOMAC VALLEY

The regular meeting of the Potomac Valley Medical Society was held at Burlington on the evening of October 27 with 19 members in attendance. Dr. V. L. Dyer, president, presided. A turkey dinner was served to the members and guests at six o'clock, following which the scientific program was taken up.

The guest speaker of the evening was Dr. Howard T. Phillips, Wheeling, who gave an illustrated talk on "Diseases of the Skin."

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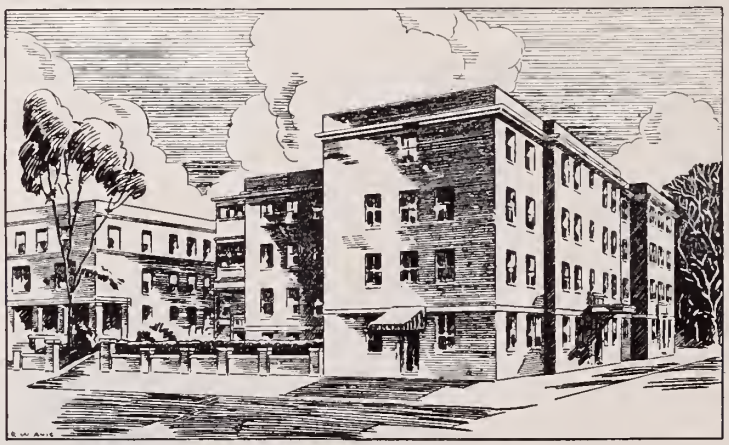

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